The Dissertation Committee for Erin Collette Nelson Certifies that this is the approved version of the following dissertation:

"I Have Cancer": Understanding the Decision to Disclose to Family Members Using the Theory of Motivated Information Management

Committee:

Erin Donovan, Supervisor

Rene Dailey

Anita Vangelisti

Mike Mackert

Brad Love

"I Have Cancer": Understanding the Decision to Disclose to Family Members Using the Theory of Motivated Information Management

by

Erin Collette Nelson, B.A., M.A

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August, 2015

Dedication

Every story has a hero and every hero has a great story. This dissertation is dedicated to the many family members I have lost to the heartbreaking illness of cancer, especially my grandpa. He loved his wife, kids, and grandchildren with all his heart and taught me to appreciate life – especially one of adventure. As my number one fan, he was always full of pride when he called me ‘Doc’ so this one is for you Grandpa! I have finally earned that title!

Acknowledgements

Although there are many friends, family, and mentors to thank that have played some role in my journey to get here, the one who has endured every up, down, sideways, backward, and flip on this roller coaster of a journey is my best friend, my husband. Travis, you are my rock. There are not even words to describe the pride, humility, enthusiasm, and love you demonstrate each and every single day to everyone around you. You make me want to be the best possible version of myself and I couldn't ask for anything more. Thank you for always listening, pushing me when I needed it the most, being patient, and most of all, loving me unconditionally.

I wouldn't be the person I am today without my parents. As my dad says, I am graduating 22nd grade and he couldn't be more proud. Thank you for being silly and lighthearted my whole life because without that spirit, I would not have gotten this far. You both have taught me to be independent and blaze my own trail in this life and I will forever be grateful for that. I know that I get my determination from you dad and my open heart from mom, which have undoubtedly been the most important qualities to get through this degree program.

Lastly, my advisor Erin deserves a huge thank you because you made this possible. You have taught me how to take ownership over my ideas, challenge my mind, and push it to the limits. You have supported me every step of the way and have shown me what true mentorship looks like. Thank you for always having tissues in your office, because God knows I used them, and thank you for being my mentor, teacher, and friend.

"I Have Cancer": Understanding the Decision to Disclose to Family Members Using the Theory of Motivated Information Management

Erin Collette Nelson, Ph.D

The University of Texas at Austin, 2015

Supervisor: Erin Donovan

Disclosure is considered a form of information management (Petronio, 2002) and illness disclosures are distinctly different than secrets or other types of information in need of management (Greene, 2009). An emerging communication theory, the Theory of Motivated Information Management (TMIM; Afifi & Weiner, 2004), provides a nuanced framework for describing the multifaceted cognitive and communicative components of information management. The present study aims to investigate cancer disclosures as a motivated information management process experienced by the information provider, the cancer patient. An exploratory study conducted by Nelson & Donovan (2014) demonstrated evidence that cancer disclosures can be characterized as information management and that information providers' experiences parallel phases of the information management process, which is an area of the TMIM yet to be explored. Individuals who have been diagnosed with cancer at some point in their life (N = 137) completed an online survey regarding the cognitions and emotions they recalled having prior to disclosing their diagnosis to a particular family member. Results indicate that cancer patients experience the cognitive assessments of TMIM, which influence the disclosure characteristics of open communication and topic avoidance. A model for the

information provider's TMIM process is supported, demonstrating the applicability of TMIM to information provision in the context of illness disclosures.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Cancer turns an individual's life upside down. New experiences arise, daily life can become more complicated, and relationships can be altered forever. Amongst the chaos of personal strife and understanding, patients have to manage communication with others, especially family members. The words "I have cancer" have the potential to alter those relationships forever. Research often focuses on doctor-patient interactions or genetic testing results, such as how or when doctors disclose to patients (Butow et al., 1996; Hagerty et al., 2005a; Hagerty et al., 2005b), how or when to disclose genetic test results to family members (Aktan-Collan et al., 2011; Bradbury et al., 2012; Ersig, Hadley, & Koehly, 2011; Forrest et al., 2003), or how or when to disclosure online (Barak & Gluck-Ofri, 2007; Shim, Cappella, & Han, 2011). In terms of family communication, the research focuses on spousal disclosure of feelings, thoughts, and worries surrounding cancer instead of the initial diagnosis disclosure (Manne & Badr, 2008; Manne et al., 2004a; Manne, Badr, Zaider, Nelson, & Kissane, 2010). Little research focuses on the disclosure decision process to family members when a cancer diagnosis is first discovered.

What we do know from other literature is that individuals seem to be deliberate in their choices on when and to whom they share their personal health information (Chaudoir & Fisher, 2010; Derlega, Winstead, Greene, Serovich, & Elwood, 2004; Greene et al., 2012) and that avoidance of communication about cancer poses negative

mental health consequences for the patient and family members (Goldsmith, Miller, & Caughlin, 2008). There is also strong support for the physical, emotional, and psychological benefits of disclosure, such as increased social support, resources, buffering effect, and well-being (Frattaroli, 2006; Langer, Brown, & Syrjala, 2009; Manne et al., 2007; Suls, Green, Rose, Lounsbury, & Gordon, 1997). Additionally, literature demonstrates that family members feel that they have a "right to know" about a family member's serious illness and that the ill person may likewise feel an obligation to tell certain individuals because of their familial ties (Caughlin et al., 2009; Derlega et al., 2004; Donovan-Kicken, Tollison, & Goins, 2012; Simoni et al., 1995). For example, HIV patients report the reason for disclosing to specific family members is because of a high focus on maintaining honesty in the relationship (Simoni et al., 1995). The ideas of obligation or the desire to maintain honesty stem from the widely-cited notion that openness is one of the most important qualities of a relationship and plays a pivotal role in relational development and maintenance (Altman & Taylor, 1973; Baxter, 1986; Berger & Calabrese, 1975; Canary, Stafford, Hause, & Wallace, 1993).

A practically and theoretically important question to ask is, "How do cancer patients make the decision to disclose to certain family members?" In order to answer this question, the present study relies on a relatively new theoretical model, the Theory of Motivated Information Management (TMIM; Afifi & Weiner, 2004). Afifi & Weiner (2004) argued that one of the important contributions of the TMIM is the recognition of the interactive nature of information management between information seeker and

information provider. The founding scholars argued, "TMIM's propositional framework applies only where individuals are actively interested in managing information and intentionally engage cognitive and other resources toward that end" (p. 170). TMIM was originally intended and has mainly been applied to information seeking. More recent research has supported the assumptions within the TMIM regarding the information provider (Dillow & Labelle, 2014), and more specifically the information provider as initiator in the information management process of disclosures (Nelson & Donovan, 2014). However, Nelson and Donovan's study was exploratory and limited by qualitative data so the present study serves to empirically test their findings.

Cancer patients can be considered information providers (IPs) upon first learning of their cancer diagnosis and recognizing that this newfound information requires management, especially with family. Therefore, TMIM is an ideal framework to examine how individuals facing new information, such as newly diagnosed cancer patients, come to the decision to reveal. A number of models have been put forth for understanding the decision process of disclosure (Afifi & Steuber, 2009; Afifi & Steuber, 2010; Greene, 2009), but TMIM offers a number of advantages beyond these models: It a) offers a holistic perspective of the information management process; b) outlines the cognitive processes underlying information management through three phases; c) recognizes the interactive nature of disclosure; and d) applies to health disclosures.

Recognizing the limitations of previous research and innovatively using TMIM as a framework, this dissertation has two goals: 1) demonstrate the applicability of TMIM to

information provision, specifically in the context of cancer diagnosis disclosures, and 2) identify the phasic process of illness disclosure to family members. In doing so, the aim is to demonstrate support for the notion that information provision is an information management process and therefore TMIM is an appropriate framework to understand it in the context of illness disclosures. Secondly, the focus on family members in the present study provides a basic understanding of how individuals decide to disclose to particular family members. Examining disclosure to a family member as a motivated information management process can shed light on a critical yet complex and understudied aspect within personal relationships.

Chapter 2: Literature Review and Rationale

The following literature review and rationale is organized into three main sections. Throughout, TMIM is proposed as a holistic framework for information management processes, specifically focusing on disclosure. First, illness disclosure literature will be reviewed to provide a base for our current understanding of the implications and findings for cancer diagnosis disclosures. Second, a broad conceptualization of the TMIM as it applies to information seeking will be outlined. It is important to build a foundation for the theory through the original assumptions of the framework, and following will be an outline of the TMIM as it applies to the IP in the process of disclosure. The last section will intertwine the findings of an exploratory study regarding the TMIM for IP's who have cancer (Nelson & Donovan, 2014) with a rationale, research questions, and hypotheses for the present study. The three phases of the TMIM will guide this last section to coincide with the flow of the proposed model for the IP side of TMIM.

ILLNESS DISCLOSURE

Illness disclosures are distinctly different than secrets and intimacy-gaining disclosures because of the physiological and emotional trials associated with such information (Greene, 2009; Greene et al., 2012; Henderson, Davison, Pennebaker, Gatchel, & Baum, 2002; Northouse & Northouse, 1988). Upon first learning of an illness, individuals face a number of challenges, including seeking social support, resources,

information, and managing emotional and physical outcomes of the illness (Brashers, Goldsmith, & Hseih, 2002; Goldsmith & Albrecht, 2011; Northouse & Northouse, 1988). One of the first communication issues individuals encounter is the decision to disclose the diagnosis and to whom to disclose (Greene, Derlega, & Mathews, 2006; Greene et al., 2012; Pistrang & Barker, 1992). Common barriers that hinder patients from disclosing to close others include symptom and prognosis (Checton & Greene, 2012), predicted target response (Manne et al., 2004a), experienced depression (Gallagher, Parle, & Cairns, 2002; Sykes, Blanchard, Lackner, Keefer & Krasner, 2003), fear of being a burden to family members (Cousineau, McDowell, Hotz, & Hebert, 2003; Henderson et al., 2002; Jorgensen, Garne, Sogaard, & Laursen, 2015; Wilson, Curran, & McPherson, 2005), and wanting to protect the family member from being upset or worried, referred to as protective buffering (Coyne & Smith, 1991; Langer et al., 2009; Manne et al., 2007; Suls et al., 1997). Although much of this research concentrates on disclosure within marital or work relationships, it sheds light on the fact that individuals have a number of considerations when deciding to disclose a serious illness. Beyond acknowledging barriers, it is important to recognize the positive physical and mental benefits ill patients experience as a result of disclosure.

Disclosure predicts positive outcomes for both healthy people and those facing an illness, such as increased intimacy (Manne & Badr, 2008; Manne et al., 2004a; Manne, Ostroff, Winkel, Grana, & Fox, 2005), increased relationship satisfaction (Kiecolt-Glaser & Newton, 2001; Manne et al., 2004b), enhanced coping (Lepore, 2001; Lepore &

Revenson, 2007), and increased physical and emotional well-being (Figueiredo, Fries, & Ingram, 2004; Northouse et al., 2002). These benefits do not only apply to patients but also caregivers because couples experience cancer as one system (Cliff & MacDonagh, 2000; Hagedoorn, Sanderman, Bolks, Tuinstra, & Coyne, 2008; Northouse et al., 2002; Segrin, Badger, Dorros, Meek, & Lopez, 2007). However, the research has yet to extend to other familial relationships, such as parents, siblings, or extended family members, thus demonstrating an important goal of the present study.

Research has demonstrated that only 7% of cancer patients report not disclosing the diagnosis to their spouse, but 30% report not disclosing to large subgroups of their network, such as family, friends, and co-workers (Henderson et al., 2002). It is important to understand the information management process of disclosure for these subgroups, such as family members. A number of models have been put forth to explain individuals' decisions to disclose information in general and specific to illness, such as the Cycle of Concealment Model (Afifi & Steuber, 2010), the Revelation Risk Model (Afifi & Steuber, 2009) and the Disclosure Decision-Making Model (Greene, 2009).

The Cycle of Concealment Model (Afifi & Steuber, 2010) is rooted in Communication Privacy Management Theory (Petronio, 2002), specifically incorporating the idea of risks dictating the permeability or flexibility of boundary rules regarding private information or secrets. The more that people anticipated positive reactions to their disclosures, the more flexible their boundaries become; however, boundaries become increasingly impervious when disclosers expect more negative reactions. If negative

reactions are consistently occurring, Afifi and Steuber argued that this perpetuates a cycle of concealment. The second model, the Revelation Risk Model (Afifi & Steuber, 2009), focuses on risk management. The higher the risk involved in disclosing, the more likely an individual will refrain from revealing it. The model outlines three conditions individuals would consider revealing a secret under: the need for catharsis, evaluating a target as 'needing to know' or having 'the right to know,' or if they are prompted by another person to reveal. This model also considers self-efficacy as an important factor, which is an individual's feeling of adequacy in his or her communication skills to effectively reveal the secret.

These two models are founded on risk evaluation, are used to predict whether or not a revelation occurs, and focus on outcomes and influences of the decision to disclose, but it is important to examine the process further. Therefore, a third disclosure model emerged to attend to the decision process for health disclosures: Greene's (2009) Disclosure Decision-Making Model (DD-MM). Greene outlined that the decision process to disclose health information is based on three assessments made by the potential discloser: qualities of the information (stigma, preparation, prognosis, symptoms, and relevance to others), the receiver (relational quality and anticipated response), and disclosure efficacy (communication self-efficacy). Although these components have been found to be important for disclosures of invisible illnesses such as HIV or heart disease (Greene et al., 2012), aspects such as valence, symptoms, preparation, relevance, and stigma are not as applicable to cancer diagnosis disclosures. The valence of a cancer

diagnosis disclosure is inherently negative, many patients do not have severe symptoms at the time of diagnosis, there is no way to be prepared for such a life-threatening illness, and cancer can be considered highly relevant to family member targets because of genetic history or care giving factors (Akton-Collan et al., 2011; Ersig et al., 2011; Forrest et al., 2003; Hallowell et al., 2003). There is also generally less of a stigma associated with a cancer diagnosis, other than identity outcomes of becoming "the cancer patient" or for those who have cancer that is perceived to be 'caused' by their own behavior (Chapple, Ziebland, & McPherson, 2004; Devins & Lebel, 2008; Hamilton, Moore, Powe, Agarwal, & Martin, 2010). Additionally, the DD-MM does not account for emotion (i.e., feeling anxious that the target does not know about the information) or coping (i.e., coping with the target's reaction) on the part of the discloser. For example, when a cancer patient finds out he or she has cancer and evaluates a particular target to whom to disclose, the patient could feel anxious about the disclosure which motivates him or her to evaluate the outcomes of disclosure and whether or not he or she can handle that outcome.

Given the limitations of prior disclosure models, an alternative theory of information management is put forth as an innovative framework to better understand health disclosures. First, the Theory of Motivated Information Management (TMIM; Afifi & Weiner, 2004; Afifi & Morse, 2009) as it is originally conceptualized in the context of information seeking will be explained. Second, a study testing the theory's assumptions in the context of cancer disclosures will be reviewed, and the information provider section of the model will be proposed.

THEORY OF MOTIVATED INFORMATION MANAGEMENT (TMIM)

A theoretical model that has been used to understand the information management process is the Theory of Motivated Information Management (TMIM; Afifi & Weiner, 2004). Information consists of "stimuli from a person's environment that contribute to his or her knowledge or beliefs" (Brashers et al., 2002, p. 259). The processes of gathering, sharing, and avoiding information are known as information management strategies in which individuals are believed to participate in through their motivation to manage uncertainty (Brashers, 2001; Brashers et al., 2002). The main premise of TMIM is that individuals manage uncertainty surrounding information they perceive to be important. The explicit role of uncertainty sets the TMIM apart from other information management models and makes it a useful theory to understand information disclosure and seeking in the context of health. It also portrays the information management process as a systematic process with three phases: interpretation, evaluation and decision (see Figure 1). In order to provide a foundation for this dissertation, the phases and main propositions of the TMIM are discussed next.

During the first phase, *interpretation*, individuals become aware of a discrepancy between the amount of uncertainty they currently have and the amount they desire. This discrepancy leads to an emotional response. For example, when individuals become

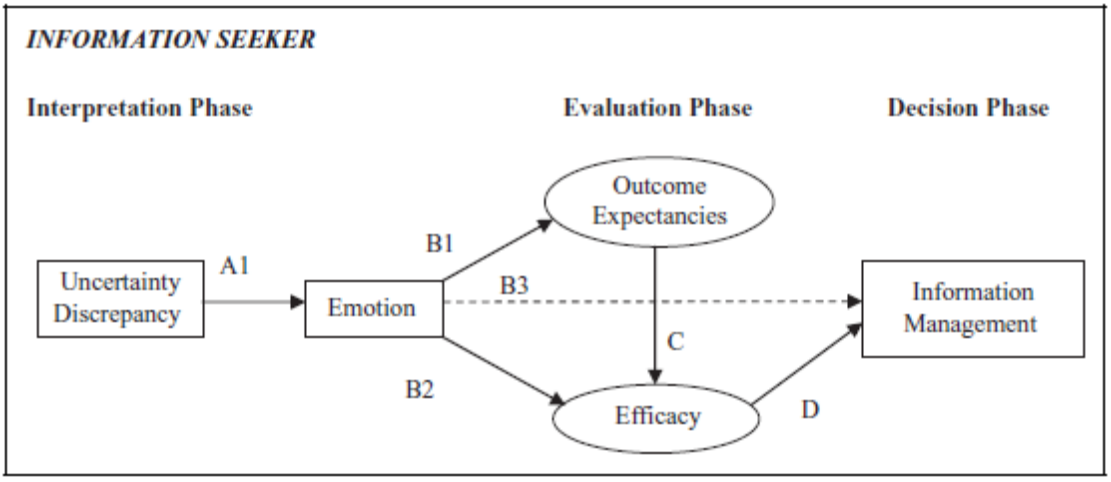


Figure 1. Original TMIM propositional structure

aware that they do not have all the information about a partner's illness, they may experience anxiety as a result. Specifically, the size of discrepancy between the current level of uncertainty and the desired level is positively related to the intensity of emotional responses (Figure 1, Path A1). The individual is then motivated to manage the emotional reaction and thus makes assessments about the outcome of and efficacy to seek the information (Figure 1, Path B1 and B2), which is the mark of moving into the second phase, *evaluation*. During the evaluation phase, individuals make outcome assessments of an information search and evaluate efficacy assessments regarding their ability to gain the information successfully. Outcome assessments have three components: a) outcome expectancy, outcome importance, and outcome probability. *Outcome expectancies* are assessments of the benefits and costs of the information-seeking process and the information-seeking result (i.e., Will the outcome be positive or negative?). *Outcome*

importance is the assessment of the significance of the benefits and costs to the self or to the relationship (i.e., Is the expected outcome important?). Lastly, *outcome probability* involves the perceived likelihood that the outcome expectancies will occur (i.e., How likely will my partner give me the information and be upset about it?). In sum, these three components of evaluating the expectancy, value and probability of the benefits and costs occur prior to, and thus influence, efficacy assessments.

Efficacy assessments, the second component of the evaluation phase, are comprised of three types: communication, coping, and target efficacy. *Communication efficacy* is the perceived ability to successfully perform a particular information-seeking strategy (i.e., Am I able to communicate my desire to know more information effectively?). The second type, *coping efficacy*, is conceptualized as the evaluation of one's network support resources to manage the outcomes of the information-seeking process (i.e., Can I cope with the information I receive?). Essentially it is the question of whether they feel they are equipped to cope with the outcomes if they proceed to seek information. Lastly, *target efficacy* has two components: target ability and target honesty. Target ability is an evaluation of the capability of the IP to disclose or have access to the information and target honesty is whether the target will be truthful and willing to offer all the information (i.e., Will my partner be able to give me the information and be truthful?). Efficacy and outcome assessments do not occur simultaneously, but outcome assessments are argued to influence efficacy assessments (Figure 1, Path C). For example, an individual evaluates the probability and importance of the perceived

outcome and then evaluates his or her own and the target's capability in light of this outcome. These efficacy assessments are positively associated with the decision to seek information (Figure 1, Path D). Therefore, efficacy assessments mediate the relationship between outcome expectancies and information management decision and individuals pursue information-seeking strategies to the extent that their outcome expectancies are positive and efficacy assessments are high (Afifi et al., 2006; Afifi & Weiner, 2004; Fowler & Afifi, 2011).

The process delineated by the TMIM offers an account of why individuals pursue information from a target. This framework has been applied to information seeking and topic avoidance in families and personal relationships (Afifi & Afifi, 2009; Afifi, Dillow, & Morse, 2004) and has demonstrated utility in numerous health contexts, such as organ donation (Afifi et al., 2006), sexual health (Afifi & Weiner, 2006), end-of-life care among spouses (Rafferty, Cramer, Priddis, & Allen, 2014), and family health history (Hovick, 2014). These studies used the theory to explain information seekers' progression through the interpretation, evaluation, and decision phases when seeking important health information. Specifically, information seekers experience a negative emotional response to a discrepancy between what they want to know and what they currently know, and this emotional response leads seekers to make assessments about predicted outcomes, which in turn influences their self- and target-centered efficacy. All of these factors then combine to predict strategies or characteristics of information management, such as direct and indirect information seeking (Dillow & Labelle, 2014;

Fowler & Afifi, 2011), and topic avoidance (Afifi & Afifi, 2009; Rafferty et al., 2014). Although these studies support the TMIM model within many different contexts, only one study has investigated the IP's section of the model.

As demonstrated in the TMIM model, the theory includes the information provider (IP) who is traditionally viewed as the target of the information seeking process. Afifi and Weiner (2004) argued that "the information provider (IP) cycles through the evaluation and decision phases much like the information seeker" (p. 184). The IP perspective of the TMIM has only recently begun to receive attention. A recent study by Dillow and Labelle (2014) supported the theory's conceptualization of the IP's information management process in the context of STI testing, in which IPs experience an evaluation phase, consisting of outcome assessment and efficacy assessment (i.e., communication self-efficacy), and a decision phase (i.e., indirect or direct information provision). Specifically, the scholars found that more positive outcome assessments were related to higher communication efficacy and higher communication efficacy predicted more direct information provision about a partner's STI testing. Largely, this study demonstrated that IPs experience an evaluation and decision phase as originally conjectured in the theory. However, within the information provision context, the IP may not only be the target of an information seeking effort, but arguably can be the initiator when he or she obtains information, such as a cancer diagnosis.

A recent study by Nelson and Donovan (2014) sought to address this gap in the literature by focusing on the IP and the information management process. This qualitative

study analyzed interview transcripts of cancer patients to investigate the extent to which IPs' accounts of their cancer disclosures can be characterized by the TMIM interpretation, evaluation, and decision phases. The authors found evidence that cancer patients who have something to reveal can be considered IPs and their information management process aligns with concepts within the TMIM.

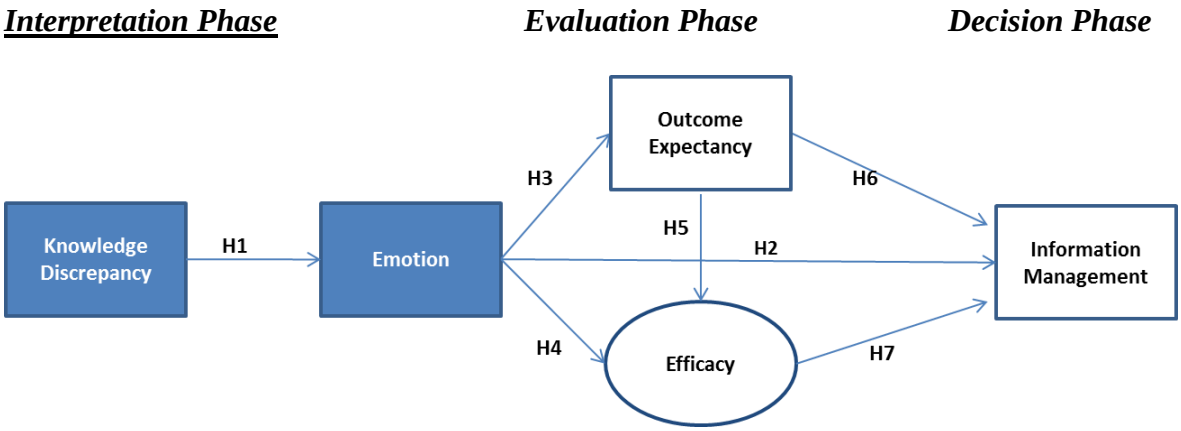


Figure 2: Proposed TMIM Model for IPs (Interpretation phase highlighted)

TMIM AND INFORMATION PROVISION

Afifi and Weiner (2004) stated, "The TMIM considers IPs as cognitively and communicatively active members of the information-management process. The process starts for targets (the IP) when they become aware of another's desire for information" (p. 184). The authors were not entirely clear as to why the IP is only viewed as a target of the information management process. Therefore, Nelson and Donovan (2014) sought to demonstrate that the IP can also be the initiator of the information management process

through applying TMIM to information provision in the context of cancer. Interviews and focus group data from 40 cancer patients were analyzed as a preliminary investigation to establish the viability of examining cancer diagnosis disclosures through a TMIM lens. Results indicated that cancer patients, classified as IPs, make assessments that can be categorized as the cognitive constructs within the TMIM: discrepancy, emotion, outcome expectancy, efficacy, and information management strategies. However, given the qualitative nature of the study, their findings were limited. The present dissertation seeks to quantify Nelson and Donovan's findings in order to support TMIM's utility in the context of illness disclosures. Thus, the remainder of this chapter will be organized by the TMIM phases, addressing Nelson and Donovan's findings with rationale from previous literature to support the relationships that are put forth as hypotheses. Figures 2, 3, and 4 depict the proposed TMIM model for IPs as conceptualized from Nelson and Donovan's findings.

Interpretation Phase

According to Afifi and Weiner (2004), issue importance is the defining scope for the activation of information management processes because individuals must deem an issue important in order to have the desire to manage it. Receiving news that one has cancer is an extremely important issue because of its physical, psychological, and social effects (Brashers et al., 2002; Goldsmith & Albrecht, 2011; Greene, 2009; Greene et al., 2012; Henderson et al., 2002; Northouse & Northouse, 1988). Meeting the defining scope of issue importance, the focus is then reverted to the decision process involved in

managing such information. Learning of a cancer diagnosis makes the patient an IP in possession of information that may need to be disclosed. The first question that often runs through their minds is, "Who do I need to tell?" (Gray, Fitch, Phillips, Labrecque, & Klotz, 1999). Theoretical frameworks such as Communication Privacy Management and Uncertainty Reduction Theory are grounded on the premises that managing information is characterized by a dialectical tension between disclosure and privacy or openness and closedness (Baxter & Montgomery, 1998; Derlega, Metts, Petronio, & Margulis, 1993; Kelly, 2002; Petronio, 2002). Individuals have desires to be open with others, but maintain their privacy regarding certain issues. Therefore, it is reasonable to expect that the evaluation of information ownership plays a pivotal role in an IP's information management process.

Knowledge Discrepancy

Nelson and Donovan (2014) found that for the IP, the information management process began with a *knowledge discrepancy* in which individuals expressed awareness that they were in possession of knowledge about their diagnosis and family members were unaware. For example, participants expressed concern that they would need to tell their children, spouse, or parents about the illness. However, a definitive conceptualization of knowledge discrepancy was not exactly clear from their qualitative analyses. Based on their findings, a few possibilities arose. First, the discrepancy could be conceptualized as a *state of knowledge discrepancy* between their own knowledge of the diagnosis and the information recipient (IR), given that the IR has zero knowledge

prior to disclosure. This is simply the IP's preference regarding the discrepancy between the IP possessing information and the IR not being aware of it yet. For example, upon learning of their diagnosis from the doctor the IP possesses important health information that the IR is not aware of yet. The IP may find this desirable. Therefore, this discrepancy could be what begins the desire to manage the information and begin the TMIM process.

A second potential conceptualization is *recipient desired discrepancy* or *IR desired discrepancy* which is between the current state of knowledge for the IR (being zero) and what the IP perceives the IR's desired state of knowledge to be. This brings an outward focus of the knowledge discrepancy in which the IP is focused on the discrepancy between the IR's current and desired state of knowledge, while the previous explanation is a discrepancy in possession of knowledge (the IP's versus the IR's). The comparison between the IP's and IR's possession of knowledge seems too simplistic because an illness diagnosis is much more complex. Greene and colleagues have demonstrated that information components, such as stigma, prognosis and symptoms play a pivotal role in the decision to disclose health related information (Checton & Greene, 2012a; Greene, 2009; Greene et al., 2012). Similarly, this conceptualization could be evidenced in previous literature demonstrating that cancer patients often feel a sense of obligation or duty to tell family members (Caughlin et al., 2009; Derlega et al., 2004). Donovan-Kicken et al. (2012) explain this as a component of *communication work*, which is, "demanding and effortful; it is associated with a sense of duty or obligation that is sometimes shared with significant others in a division of communicative labor" (p.

644). Cancer patients may feel a sense of obligation to tell others because they feel a sense of need to "act as a moral agent" (Hallowell et al., 2003) in terms of making decisions based on what is best or would be desired by important others. So the patient identifies that this possession of information may be appraised by the IR as an undesirable discrepancy in the state of his/her knowledge and thus initiates the management process.

The last possible conceptualization is *IP desired discrepancy*, which could be seen through comparing the IR's current state of knowledge and what the IP desires their knowledge to be. Nelson and Donovan (2014) stated that participants described "knowledge discrepancy through comparing the target's current state of knowledge, usually none at all, to their perceived desired state, whether that is the patient's desired level for the target or a perception of what the target would desire" (p. 11). This is evidenced in Nelson and Donovan's findings through participant's explanations of feeling that others "have a right to know" or "need to know" because this adds a marker of family illness history or potential side effects that others need to be aware of. This conceptualization seems similar to the prior one in terms of comparing an actual level of knowledge to a desired state; however, it is not clear in Nelson and Donovan's findings if the desired level of knowledge is the IP's perception of what the IR would want or the IP's own desired level for the IR. Because it is not clear what the underlying dimensions of knowledge discrepancy are, the following research question is put forth:

RQ1: What are the underlying dimensions of knowledge discrepancy in TMIM?

Emotional Response

Consistent with the TMIM, I propose that the second component of the interpretation phase stemming from knowledge discrepancy is emotional response. Originally Afifi and Weiner (2004) argued that anxiety stemmed from the uncertainty discrepancy but in 2009 Afifi and Morse revised the TMIM. Grounded in Lazarus's (1991) appraisal model of emotion, Afifi and Morse argued that their original proposition of anxiety as the only emotional response to the disequilibrium of uncertainty was limiting because it ignored variability in emotional appraisals in the information management process. The authors explained their rationale in terms of goal congruence. Appraisal theory argues that goal congruence or incongruence is "the extent to which a transaction is consistent or inconsistent with what the person wants" (Lazarus, 1991, p. 150). Therefore, comparing the IR's current state of knowledge to their desired state of knowledge could also be considered goal incongruence and according to the appraisal theory framework, goal incongruence leads to a negative emotion. This implies that more than just one negative emotion, anxiety, can be a possible outcome of the knowledge discrepancy. For example, recognition of incongruence in knowledge may lead IPs to feel frustrated because they have to do something they don't want to do or don't know how to do. Or an IP may feel sad because he or she now has to disclose information that likely will cause the target grief and sadness. Research demonstrates that fear is a major emotional response when thinking about burdening family members with the revelation

of their diagnosis (Cousineau et al., 2003; Henderson et al., 2002; Jorgensen et al., 2015; Wilson et al., 2005).

Nelson and Donovan (2014) found evidence that IPs expressed various emotions as a response to the knowledge discrepancy, such as anxiety, fear, worry, guilt, and even happiness. Patients in their study described feelings of obligation to tell certain individuals based on their perception that the target would "want to know" or "ought to know" and this evaluation induced emotion within themselves, often worry or anxiety. According to previous research, the obligation feeling is common to those facing an illness disclosure (Caughlin et al., 2009; Derlega et al., 2004; Donovan-Kicken et al., 2012; Simoni et al., 1995); however, making a direct connection between this feeling of duty or responsibility and an emotional reaction has not been directly tested. Aligning with TMIM assumptions, an IP's realization of a knowledge discrepancy can be considered goal-incongruence. If an inconsistency between what the individual wants and what is currently happening constitutes goal incongruence, the comparison between any of the potential types of knowledge discrepancy could fit this conceptualization. As described above (RQ1), knowledge discrepancy could take on the form of a comparison between the IP's level of knowledge and the IR's level, between the perception of current and desired state for the IR, or between the IR's current level of knowledge and what the IP desires their level to be. All of these comparisons highlight a divergence between reality and desires and based on appraisal theory assumptions, this should lead to a

negative emotional response (Afifi & Morse, 2009; Lazarus, 1991). Therefore, the size of the knowledge discrepancy should predict a more intense emotional reaction.

Consistent with Afifi and Morse's (2009) revised assumptions, the goal incongruence produces an emotional response, but the type of emotion depends on the emotion appraisals. Fowler and Afifi (2011) tested the newly revised TMIM model, which allows for a number of emotional responses to occur, including positive emotions. In the discussion, the authors admit their surprise with the frequent reporting of positive emotions as a result of the discrepancy and they further explain, "these responses were given by a sample of participants who generally felt that they possessed approximately the level of information that they desired" (p. 527). Therefore, in the context of cancer disclosures, with a smaller gap between actual and desired level of knowledge, the patient may feel a positive emotion. For example, if a breast cancer patient recognizes a discrepancy between what her daughter currently knows and what she perceives the daughter would desire to know, this could make her experience a negative emotional appraisal but when she recognizes that there is not enough information to meet the daughter's expectations, she may be happy about the discrepancy because the IP wants her daughter to remain unaware until she is able to give all the desired information. This is demonstrated in the plethora of literature showing that individuals evaluate information (e.g., symptoms and prognosis) and its completeness before deciding to disclose to others and the lack of completeness often leads patients to avoid or delay disclosure (Derlega et al., 1993; Greene et al., 2012; Petronio, 2002).

Similarly, when making decisions about disclosure individuals evaluate self-, other-, and relationship-reasons for not disclosing (Greene, Derlega, & Mathews, 2006), and these reasons could lead one to evaluate the imbalance of knowledge as desirable, therefore experiencing a positive emotion. More specifically, individuals facing serious illnesses have expressed comfort or positive evaluation regarding certain individuals' not knowing about the diagnosis until the patient is ready or has the appropriate amount of information to meet the family member's informational needs (Hay et al., 2009; Lester et al, 2002). For example, a study on mothers with HIV found that the mothers in their study waited to tell younger children until the children "demonstrate a level of emotional maturity or readiness to handle the information, thus enhancing the chances that their children will be able to cope with the disclosure successfully" (Shaffer, Jones, Kotchik, & Forehand, 2001, p. 309). Therefore, someone who experiences high knowledge discrepancy may experience a positive or negative emotional response, depending on the type of discrepancy (IR desired, IP desired, or state of knowledge discrepancy).

Given that knowledge discrepancy is a new construct, it is uncertain what the relationship between knowledge discrepancy and emotion will be. As previously described, literature demonstrates that a large discrepancy could lead to a negative emotional response or a positive emotional response, depending on what type of knowledge discrepancy. For IR desired discrepancy, which is between what the IR currently knows and what the IP perceives the IR would want to know, this may lead the cancer patient to experience a negative emotion and less positive emotion because of

their feelings of obligation. For IP desired discrepancy, which is between what the IR currently knows and what the IP desires them to know, the larger gap could lead to positive emotion because of goal incongruence or it could lead to a positive emotion because the gap is desirable. Therefore a hypothesis is proposed for negative emotion, a research question is put forth for positive emotion, and in order to examine which conceptualization of knowledge discrepancy best fits the TMIM model, a research question is presented:

H1: The size of knowledge discrepancy is positively associated with the intensity of negative emotional response.

RQ2: What is the relationship between knowledge discrepancy and positive emotional response?

RQ3: To what extent does each underlying dimension of knowledge discrepancy predict phases of the TMIM model?

According to TMIM, the emotional response stemming from a knowledge discrepancy may directly affect disclosure qualities, such as breadth and depth or topic avoidance. In line with TMIM assumptions and disclosure literature, depth and breadth of disclosure are important information management strategy factors to examine in the TMIM for IPs. For example, in discussing future directions for TMIM research, Afifi (2010) declared that IPs' strategies differ in completeness and directness. For IPs as initiators, completeness and directness can be conceptualized as *depth*, which is the amount of detail disclosed on one topic, and *breadth*, conceptualized as the range of

topics disclosed. Communication Privacy Management Theory (CPM; Petronio, 2002) and Social Penetration Theory (SPT; Altman & Taylor, 1973) hold firm assumptions about these two concepts in the context of disclosure. CPM argues that individuals create and regulate boundaries surrounding important personal information and vary depth and breadth of disclosure based on these boundaries. In the illness disclosure context, research has demonstrated that many considerations and assessments can influence the amount of depth and breadth of disclosures (Chaudoir & Fisher, 2010; Checton & Greene, 2015; Greene, 2009; Greene et al., 2006; Venetis, Magsamen-Conrad, Checton, & Greene, 2014). For example, Checton and Greene (2012) found that a patients' perception of their own ability to talk to their partner about cancer-related topics positively predicted the depth and breadth of their disclosures. These qualities of disclosure offer a more detailed insight to the decision process involved in information management.

A second information management strategy according to TMIM is avoidance (Afifi & Weiner, 2004). Literature on topic avoidance offers an expansive view on this concept as an outcome of the information management process. Topic avoidance is arguably the dialectical counter to disclosure (Baxter & Montgomery, 1998) because it occurs when ''an individual strategically decides not to disclose information'' (Afifi & Guerrero, 2000, p. 166) or prevents a discussion of a particular subject (Dailey & Palomares, 2004). Therefore, literature addressing disclosure sometimes refers to topic avoidance as an alternative information management strategy. Thus the previous and

aforementioned literature surrounding disclosure indicates an opposing relationship to topic avoidance. Rafferty et al. (2014) conducted a study testing the TMIM for information seeking about end-of-life care in marital couples and found that the TMIM model was significant when topic avoidance, not information seeking, was the outcome variable. Their findings demonstrated that the TMIM may be more predictive of particular information management strategies, especially surrounding sensitive or difficult topics. Furthermore, illness literature demonstrates that topic avoidance is another information management strategy often used by cancer patients (Goldsmith et al., 2007; Greene, Derlega, Yep, & Petronio, 2003; Donovan-Kicken & Caughlin, 2010). Therefore, topic avoidance is included in the present study to explore its role in the TMIM for IPs as initiators of the information management process.

In the interpretation phase, the emotional response patients experience as a result of the knowledge discrepancy should directly influence the information management strategy. Afifi and Afifi (2009) argued that emotion "is what ultimately serves as the motivational force that guides information-management decisions" (p. 491). In their qualitative analysis, Nelson and Donovan found evidence that patients express emotions, such as fear or worry, but the study design did not allow them to empirically test the relationship between emotion and information management strategies, such as depth, breadth, and topic avoidance. Therefore, the present study will test these relationships in order to better understand how emotion influences information management for IPs as initiators.

As previously discussed, illness disclosures are distinctly different than secrets or general self-disclosure because illness disclosures are not necessarily centered on intimacy, reciprocation, and relational progression (Greene, 2009; Greene et al., 2006). For example, a cancer patient may not disclose their health information with the intentions of gaining intimacy with a target or in order for the target to reciprocate with disclosure. A diagnosis disclosure serves the purpose of making others aware of a life-changing illness (Derlega et al., 2004; Greene et al., 2006; Simoni et al., 1995). When faced with a cancer diagnosis, the knowledge discrepancy may lead a patient to experience a negative emotional response and this negative emotion leads the IP to manage the information by disclosing to the target. For example, if the patient evaluates the imbalance of knowledge as undesirable and experiences a negative emotional response, the IP may divulge more information about the diagnosis (i.e., more depth, more breadth) and engage in less topic avoidance for catharsis or to suffice the target's need for information (Derlega, Winstead, Mathews, & Braitman, 2008; Mason, Marks, Simoni, Ruiz, & Richardson, 1995; Simoni et al., 1995). Furthermore, illness literature has demonstrated that experiencing negative emotion leads to more disclosure breadth and depth and less topic avoidance because the perceived reward of the disclosure (i.e., obtaining social support) is high (Checton & Greene, 2012; Omarzu, 2000). Therefore, negative emotional response stemming from knowledge discrepancy should directly influence the depth and breadth of disclosure.

As previously discussed, patients could also evaluate the imbalance of knowledge as desirable, therefore experiencing a positive emotion. For example, if the cancer patient (IP) recognizes a discrepancy between himself and the family member to be a positive thing it could be because he wants to preserve his privacy. To support this point, in their research on social behavior and decision making in interpersonal contexts, Van Kleef, De Dreu, and Manstead (2010) argue, "in a variety of settings, moving away can be a strategically smart way to maximize personal outcomes. In cases where the perceiver wants to maintain and defend the status quo yet is faced with a partner who seeks to change it, it is probably strategically wise to move away from the partner and avoid interaction" (p. 85). Although the IP does not truly face a partner who actively seeks to change the status quo, the evaluation of uncertainty the IR would have could be evaluated in much the same way.

Illness disclosure literature also demonstrates that individuals report avoiding topics for privacy or maintaining normalcy (Goldsmith et al., 2007). Research demonstrates that cancer patients engage in what is called protective buffering, in which the patient hides or avoids communicating about particular aspects of their illness in order to spare the other person from worry (Coyne & Smith, 1991; Manne et al., 2007; Suls et al., 1997). In fact, research demonstrates that protection is one of the most common reasons for avoiding cancer-related topics among cancer patients (Goldsmith, Miller, & Caughlin, 2007). Furthermore, research demonstrates that patients feel comfortable with others not knowing about their illness and therefore, engage in more

topic avoidance (Shaffer et al., 2001). Potentially a patient may feel happy or relieved that the IR does not know yet and therefore he or she would have minimal to zero disclosure (i.e., no depth, no breadth) and high topic avoidance. Therefore, a positive emotional response will lead IPs to engage in less depth, breadth and more topic avoidance while negative emotional response will be associated with more depth and breadth of disclosure and less topic avoidance. Thus the following hypotheses are proposed:

H2a: Intensity of negative emotional response to knowledge discrepancy is positively associated with depth and breadth of disclosure.

H2b: Intensity of positive emotional response to knowledge discrepancy is inversely associated with depth and breadth of disclosure.

H2c: Intensity of negative emotional response to knowledge discrepancy is inversely associated with topic avoidance.

H2d: Intensity of positive emotional response to knowledge discrepancy is positively associated with topic avoidance.

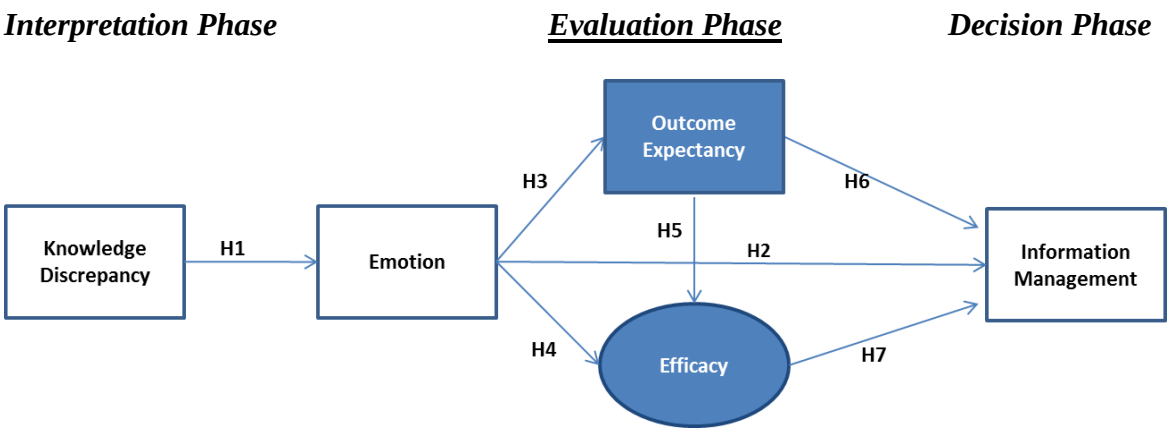


Figure 3: Proposed TMIM Model for IPs (Evaluation phase highlighted)

Evaluation Phase

The next phase proposed in the IP TMIM model reflects the potential indirect effect of emotion on information management through two important considerations. In order to manage the emotion, IPs progress into the evaluation phase making two types of assessments: outcome and efficacy assessments. According to TMIM, the emotional response influences outcome and efficacy assessments in a way consistent with the emotional appraisal (positive or negative). Therefore, if the emotional response is negative, the outcome and efficacy assessments will likely be negatively valenced, and vice versa. Nelson and Donovan (2014) demonstrated the presence of an evaluation phase for cancer patients' descriptions of disclosure to family and friends; however, the design of the study did not enable them to quantify connections between the emotional response and outcome and efficacy assessments. The authors merely demonstrated evidence that the evaluation phase, and its incumbent assessments, could be part of the information

management process for IPs. Therefore, it is necessary to review emotion literature in order to provide empirical support for this notion in the context of illness disclosures and propose a hypothesis in the present study to empirically test the connection between emotional response and outcome and efficacy assessments. First, a review of outcome and efficacy assessments in Nelson and Donovan's study and congruent emotion literature demonstrating the connection between emotion and these assessments will be given. Then IP efficacy assessments and emotion literature supporting the link between emotion and efficacy will be outlined. Lastly, the connection between outcome assessments and efficacy assessments will be established.

Outcome Assessments

According to Nelson and Donovan (2014), outcome assessments for IPs who have cancer consist of outcome expectancy, outcome importance, and outcome probability. In line with these TMIM concepts, *outcome expectancy* involves assessing potential reactions of the IR and weighing the benefits and costs of revealing the diagnosis in light of this outcome. Participants in the study expressed concern about IRs' hurt feelings if they didn't disclose, and patients considered the costs of additional input and opinions from the IR about their treatment. For example, one participant referred to her feelings of obligation to tell certain people about her colon cancer as, "You know, I was trying to walk the line between ticking them off and including them." This patient perceived the probable outcome of the target being 'ticked off' as negative and had to evaluate the costs and benefits of disclosure in light of this expected outcome.

Outcome importance reflects an evaluation of the meaning behind the costs and benefits of an outcome. The authors found that patients expressed concern over holidays, events, birthdays, and not wanting their news to be "tied to that weekend forever" as one 61-year-old breast cancer patient described it. Therefore, participants seemed to evaluate the importance of the outcome in comparison to what was going on at the time of diagnosis and based their evaluation of importance on whether the benefits of disclosing outweighed the costs.

Lastly, *outcome probability* manifested in patients' comments about how likely an outcome such as a family member worrying or crying would be. For example, a patient reported "I don't want people to think I'm an ill person. Because the people who do know me have always treated me, like you know, oh well, there's poor Meagan. So I'd rather they didn't know." Thus patients view the likelihood of an outcome happening as an important consideration when making the decision to disclose to particular others. Generally, all of the components of outcome assessments reflected costs and benefits analysis for an expected outcome of disclosure.

Extensive literature demonstrates that emotional states can influence outcome predictions. Emotion scholars argue that emotions can alter expectations of the probability of a perceived outcome because emotional states influence perception. According to Planalp and Fitness (1999), "At this basic, evaluative level, affect influences a host of other cognitive processes such as attention, perception, memory, decision making, and social judgments" (p. 737). Specifically, individuals in a negative

state may make pessimistic predictions about future interactions while those in a positive emotional state are more optimistic about interactions and see the world through "rose-colored glasses" (Levy, 1984; Lowenstein & Lerner, 2003; Planalp & Fitness, 1999). Individuals feeling happy may then perceive outcome expectancies to be positive and likely or those feeling angry or guilty may expect negative outcomes.

Illness disclosure literature also has demonstrated the direct effect of emotional states on outcome assessments. For example, Zhang and Siminoff (2003) found that cancer patients who felt depressed expressed less desire or possibility of communicating with family members about their cancer. The participants in their study attributed their lack of communication to the fact that their family couldn't do anything about it. Therefore, there is evidence for patients experiencing negative emotions and this emotional response influencing their perspective on outcomes. The patients in Zhang and Siminoff's study sometimes perceived the outcome to be undesirable (i.e., family cannot help) and other times potentially desirable but unlikely (i.e., family members able to help but likelihood is low because they cannot help to change the situation). This mirrors the three components of outcome assessments in the TMIM: outcome expectancy, outcome importance, and outcome probability.

Based on the literature, it is hypothesized that emotional response will be associated with outcome assessments, which will be measured so that lower values represent more negative outcomes than positives and higher values indicate more positive

outcomes than negatives. Therefore, the outcome assessments will be referred to as a scale of positive outcome assessment for clarity. The following hypotheses are put forth:

H3a: The intensity of negative emotional response is negatively associated with positive outcome assessments such that more negative emotion is associated with less positive outcome assessments.

H3b: The intensity of positive emotional response is positively associated with outcome assessments such that more positive emotion is associated with more positive outcome assessments.

Efficacy Assessments

Nelson and Donovan also found evidence for IPs' efficacy assessments, consisting of communication, target, and coping efficacy. The first, *communication efficacy*, involves IPs assessing their own communication skills and whether they felt confident in their ability to disclose the diagnosis to others. For example, participants in their study explained that concerns regarding their communication skills, in terms of describing the medical terms or just crafting an email to announce the news, influenced when and how they disclosed the information to family and friends. The second, *target efficacy*, refers to IPs' evaluation of IRs' ability to cope with the information if disclosed. For example, participants referenced age or health, such as being too old or too young to handle the information, as reasons for the IR's ability or inability to cope with the diagnosis. Similarly, participants mentioned behavioral tendencies of the potential IR, such as being a crier or worrier that influenced their assessment of the target's efficacy to

cope. Lastly, the third assessment is *coping efficacy*, which refers to the IP's assessment of ability to cope with the IR's reaction to the information. Part of the decision to disclose relies on the IP's assessment of their own emotional or physical resources to cope with the reactions of others.

Literature demonstrates that emotional states influence efficacy assessments. Specifically, research shows that when individuals are happy they feel more confident in their abilities and when they are sad they feel lower self-esteem and less confident (Bandura, 1986; Gist & Mitchell, 1992; Underwood, Froming, & Moore, 1980). Kavanagh and Bower (1985) argued, "emotions act like a filter through which people view efficacy information, determining which items of information become available and salient, and which frameworks people use to interpret and evaluate these selected data" (p. 508). Their research demonstrated a positive correlation between emotion and self-efficacy; specifically, positive emotions led to higher self-efficacy scores and negative emotions led to lower self-efficacy scores. In general, positive appraisals lead to approach behavior and negative appraisals lead to avoidance behavior (Planalp & Rosenberg, 2014). Therefore, as demonstrated by Nelson and Donovan (2014), the emotional response experienced as a result of a knowledge discrepancy in the IP's TMIM model influences efficacy assessments in accordance with the valence of the emotion. Communication, target, and coping efficacy are proximally influenced by emotion, in that a more intense negative emotional reaction leads to more negative efficacy assessments and more intense positive emotional reaction leads to more positive efficacy assessments.

As research demonstrates that affect influences expectancies, such efficacy assessments, it is hypothesized that the emotional reaction stemming from knowledge discrepancy influences efficacy assessments. The following hypotheses are put forth:

H4a: The intensity of negative emotional response is negatively associated with efficacy assessments such that more negative emotion is associated with lower efficacy.

H4b: The intensity of positive emotional response is positively associated with efficacy judgments, such that more positive emotion is associated with higher efficacy.

According to TMIM, outcome and efficacy assessments are not independent of one another. Afifi and Weiner (2004) argued that favorable outcome expectancies are positively associated with efficacy assessments. The IP's outcome expectancy influences the IP's assessment of self-efficacy and that of the target if the predicted outcome should occur (Greene et al., 2012; Maddux, Sherer, & Rogers, 1982; Magsamen-Conrad, Checton, Venetis, & Greene, 2014). TMIM assumptions view outcome expectancies as preceding efficacy assessments because people need to have a likely outcome in mind in order to assess their skills in following through to produce that outcome. In other words, individuals need to first think of an expected outcome of disclosing an illness diagnosis in order to assess if they can communicate the information, evaluate if they can cope with that outcome, and if the target can handle the outcome. As seen in Nelson and Donovan (2014), participants mentioned perceived outcome possibilities and the efficacy of the

individuals involved (communication, coping, and target efficacy). Therefore, the following hypothesis is put forth to empirically test the association between outcome and efficacy assessments, as proposed by TMIM, for the IP as initiator of the information management process:

H5: Outcome assessments are positively associated with efficacy judgments such that more positive outcome assessment is associated with higher efficacy.

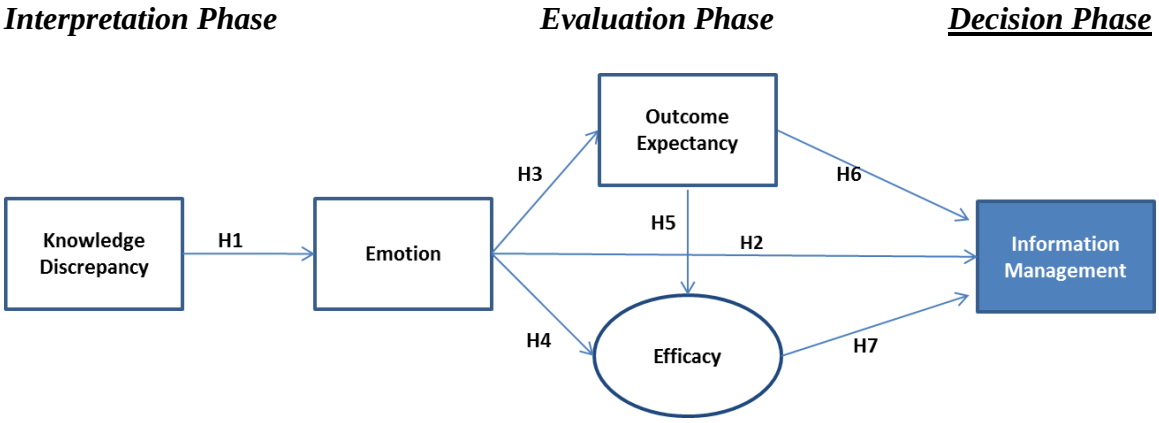


Figure 4: Proposed TMIM Model for IPs (Decision phase highlighted)

Decision Phase

TMIM argues that the decision phase for information seekers involves deciding one of three information management strategies: seek information, avoid information, or reappraise the situation (Afifi & Weiner, 2004). For IPs as initiators of the information management process, it is evident from disclosure research that individuals make a similar decision between disclosure, avoidance, or reappraisal (Afifi & Steuber, 2009; Afifi & Steuber, 2010; Afifi & Guerrero, 2000). However, there are limitations to

prospectively measuring these information management strategies in the context of cancer diagnosis disclosures. The issue is two-fold: TMIM is specific to one target or IR at a time (Afifi & Weiner, 2004) and access to cancer patients prior to disclosure to one particular IR is difficult. Therefore, the design of the present study was retrospective and asked participants to think of a particular family member they have disclosed to measuring qualities of the disclosure, such as depth and breadth and topic avoidance.

Outcome Expectancy

For IPs as initiators in the present study, information management is conceptualized as topic avoidance and depth and breadth of disclosure. According to the TMIM, individuals make a number of assessments in a phasic process to come to the decision whether to disclose or avoid, and measuring the qualities of this decision are important to better understand the process unique to IPs. Expansive literature demonstrates that more depth and breadth of disclosure is related to more relational satisfaction, positive health outcomes, and better coping (Manne et al., 2004a; Northouse, Dorris, & Charron-Moore, 1995; Pistrang & Barker, 1992). However, recent literature has argued that the decision to disclose or avoid cancer-related topics depends on salient goals (Caughlin & Vangelisti, 2009; Donovan-Kicken & Caughlin, 2010). According to Donovan-Kicken and Caughlin (2010), cancer patients' multiple goals, such as self or relationship protection, play a role in the decision to disclose or avoid topics surrounding their illness. Patients may perceive a disclosure to lead to negative outcomes in the relationship or for the target and therefore decide to avoid the topic. In general,

individuals cognitively make decisions regarding disclosure or avoidance based on costs and benefits (Afifi & Steuber, 2009; Omarzu, 2000; Vangelisti & Caughlin, 1997). These assessments factor in a number of components, including anticipated response, outcome of that response, and predictions of the flow of conversation (Greene et al., 2006; Greene et al., 2003; Greene et al., 2012; Omarzu, 2000; Petronio, 2002; Vangelisti, Caughlin, & Timmerman, 2001).

In line with Altman and Taylor's (1973) Social Penetration Theory, an individual is more likely to disclose, and more likely to disclose more (e.g., depth and breadth) if he or she perceives positive outcomes, or the benefits outweigh the costs (Afifi, Olson, & Armstrong, 2005; Afifi & Steuber, 2009; Afifi & Steuber, 2010; Vangelisti et al., 2001). In the health context, research demonstrates that cancer patients report worrying that their disclosure will cause emotional distress for family members (Hilton, Emslie, Hunt, Chapple, & Ziebland, 2009; Yoo, Aviv, Levine, Ewing, & Au, 2009). Similarly, participants in Simoni et al. (1995) reported "not worrying family members" as a top reason for not disclosing. Research focusing specifically on illness disclosures has found that disclosure goals affect the content of the disclosure, such as depth and breadth (Chaudoir & Fisher, 2010). For example, individuals with approach goals are likely to express greater depth and breadth in their disclosures while those with avoidant goals are likely to express less depth and breadth (Chaudoir & Fisher, 2010). This research supports the notion that outcome assessments, which measure the probability and importance of a potential outcome, influence an individual's decision to disclose or avoid

certain topics. Positive outcomes lead to more depth and breadth and less topic avoidance while negative outcomes lead to less depth and breadth and more topic avoidance. Therefore, the following hypothesis is put forth:

> *H6: Positive outcome assessments are associated with qualities of information management strategies such that positive outcome assessments will be (a) positively associated with depth and breadth of disclosure and (b) negatively associated with topic avoidance.*

Efficacy Assessment

The second component of the evaluation phase that is assumed to predict the information management strategy in the decision phase is efficacy assessments (communication, target, and coping efficacy). Disclosure research has clearly demonstrated the imperative role self-efficacy plays in deciding to reveal important information (Afifi, Olsen, & Armstrong, 2005; Afifi & Steuber, 2009; Greene et al., 2012; Magsamen-Conrad et al., 2014). Specifically, communication efficacy has been correlated with directness of disclosure (Afifi & Steuber, 2010) and positively predicts likelihood of disclosure (Checton & Greene, 2012; Greene et al., 2012). Individuals' perception of their own capability to communicate the information to others is positively linked to their decision to disclose or avoid. Those who do not feel confident in their abilities are likely to not pursue disclosure (Afifi et al., 2005; Afifi & Steuber, 2009). In terms of target efficacy, individuals assess targets' ability to cope or manage the information, which is strongly demonstrated in the dyadic coping (Hagedoorn et al.,

2008), perceived supportive response evaluation (Greene et al., 2012), partner burden (Venetis et al., 2014), and protective buffering literature (Coyne & Smith, 1991; Langer et al., 2009; Manne et al., 2007; Suls et al., 1997). All of these areas of research demonstrate cognitive assessments of a target when deciding to disclose personal or sensitive information, such as cancer. In the health context, Zhang and Siminoff (2003) found that fear of upsetting loved ones was one of the highest reported reasons for not disclosing to family members. Similarly, research on HIV disclosures has demonstrated that perceived social support is positively correlated to disclosure (Derlega et al., 2004; Serovich, Brucker, & Kimberly, 2000). Cancer patients may think about the target's coping efficacy, which influences their information management decisions. Specifically, stronger target efficacy should be related to qualities of the disclosure, such as depth and breadth, and weaker efficacy should be associated with topic avoidance.

Lastly, in addition to evaluating the coping ability of the target, research demonstrates that individuals evaluate their own ability to cope with their reactions (Magsamen-Conrad et al., 2014). For example, Yoo et al (2009) examine emotion work, which involves managing, soothing, and educating others' emotional reactions to the disclosure. The authors argue, "It requires thinking about how individuals will react emotionally to the communication and often results in the discloser feeling a need to anticipate and find ways to manage the emotions of others" (p. 206). Donovan et al. (2012) also mention coping with the reactions of others in their conceptualization of communication work. Cancer patients evaluate their own ability to cope with the

reactions of disclosing to others and this factor plays an important role in their decision to disclose. Therefore, a strong connection between self and target efficacy and disclosure or topic avoidance has been established through previous literature. In order to empirically test this connection for the TMIM model, the following hypothesis is put forth:

> *H7: Efficacy assessments are associated with qualities of information management strategies such that efficacy assessments will be (a) positively associated with depth and breadth of disclosure and (b) negatively associated with topic avoidance.*

Overall, based on Nelson and Donovan's (2012) findings and the preceding rationale for each path in the model, the present study expects the theoretical model associated with TMIM to show good fit with the data in the context of information provision with the IP as initiator of the process. Therefore, in addition to the path-specific hypotheses, a general hypothesis is presented about the overall proposed model to test if it applies to the context of cancer diagnosis disclosures:

> *H8: The revised TMIM model will fit the data in the context of diagnosis disclosures when the IP, the cancer patient, is the initiator.*

Chapter 3: Methods

SAMPLE

The sample consisted of 195 cancer patients (111 female, 83 male, 1 declining to answer) recruited from all across the U.S.[1] Data from participants who did not complete at least 75% of each measure used in the analyses were deleted (N = 38); thus resulting in a final sample size of 157 participants (88 female, 68 male, 1 decline to answer).. To be eligible to participate in the study participants needed to be over 18 years old and self-identify as a cancer patient, defined as being diagnosed with cancer at some point in their life. A number of outlets were used to recruit eligible participants so the sample in the present study came from three sources: 1) students from communication courses at a large southwestern university were offered minimal extra credit for recruiting a family member who met the eligibility requirements; 2) advertisements were posted to social media, such as Facebook and popular cancer support group discussion boards; and 3)

[1] A variety of outlets were used to recruit participants online so they could participate from any location. On Mechanical Turk, settings were restricted to those in the United States, but no other identifying information on their location was specified. Therefore, the location of the sample is considered across the United States.

'workers' from Amazon's Mechanical Turk (MTurk), an online marketplace, were paid $0.50 each to participate in the study.[2]

On average, participants were 43.73 years of age (SD = 16.90). Most participants reported being White/Caucasian (74.5%), followed by African American/Black (12%), Hispanic/Latino(a) (9%), Asian/Pacific Islander (4.5%), Native American (1%), Middle Eastern (1%), and other (1%). A majority of participants were married (49%) or single (34%), and college graduates (41%). The sample had a median annual income of $40,000-45,000. Seventy-one percent (111 participants) reported having private insurance at the time of diagnosis, and 49% (77 participants) answered yes to the presence of family history of cancer at the time of diagnosis. The average time since diagnosis was 4.86 years (*SD* = 4.62).

PROCEDURES

Participants completed an online questionnaire containing measures adapted from the original TMIM constructs. Measures included issue importance, knowledge discrepancy, emotion, outcome expectancy, efficacy assessments, and information management behaviors measured through depth, breadth and topic avoidance. A primary focus of the present study was how individuals manage information with family members other than their spouse because a majority of the current communication literature

[2] Carr (2014) has demonstrated that Mturk is a successful survey research recruitment tool for cancer survivors.

surrounding cancer involves marital couples. Therefore, the participants were asked to think of an immediate family member other than their spouse (i.e., daughter, son, mother, father, or sibling), or an extended family member (i.e., grandparent, grandchild, niece, nephew, cousin). To ensure that participants consistently remembered to answer the questions with the same family member in mind, the family member's name was requested at the beginning of the survey and embedded text was used within every question directions to automatically display their family member's name. Participants were prompted with the following instructions:

> *Think of [family member's name] and put yourself back in the moment when you found out about your cancer and were thinking about whether to tell this family member or not. Answer the questions with [family member's name] in mind and base your answers on your thoughts prior to your decision about telling him/her.*

About 67.5% (106 participants) reported on an immediate family member such as a parent, sibling or child. The remaining 32.5% (51 participants) reported on an extended family member, such as a grandparent, cousin, or best friend.

MEASURES

Given that the present study asked participants to recall their cognitions and emotions at the time of diagnosis before deciding to disclose to a particular family member, all items were revised to be in past tense and worded as 'At the time...". To prime participants to think of their thought process at the time and not let the actual outcome interfere with their responses, participants were asked to rate the extent to which

their family member's *actual* reaction differed from what they *expected* (Sudman, Bradburn, & Schwarz, 1996). The item was rated on a seven-point Likert-type scale ranging from *Strongly disagree* (1) to *Strongly agree* (7) with higher scores indicating a much more different reaction than expected. The mean for this item was below the scale midpoint at 3.08 (*SD* = 1.86), suggesting a relatively small difference between their expectations and actual response.

Issue Importance

Because TMIM proposes that the information management process is motivated by feelings of importance regarding the information, it was necessary to determine the degree to which participants felt that their cancer diagnosis was an important issue. Issue importance was measured using three items adapted from Afifi et al. (2006)'s original four item measure (e.g., "It was important to me that this family member knew about my cancer diagnosis"). See Appendix A for the full list of items. Participants were asked to rate the degree to which they agreed on a seven-point Likert-type scale ranging from *Strongly disagree* (1) to *Strongly agree* (7). Regarding the present study, the alpha reliability for this scale was high at α = .94 and the mean suggested that the disclosure was of high importance (*M* = 5.62; *SD* = 1.55).

Knowledge discrepancy

Developed based on Nelson and Donovan's (2014) qualitative findings that IPs' knowledge discrepancy is the analog to uncertainty discrepancy for the IP information

management process, knowledge discrepancy was measured using fifteen items (Appendix B). Some were adapted from the uncertainty discrepancy measure used in Afifi et al. (2006) and the rest were created for the purpose of this study. In order to create the items, the three dimensions of knowledge discrepancy conceptualized in the literature review were captured. First, the *state of knowledge discrepancy* is the difference between the IP's level of knowledge and the IR's level of knowledge. The perceived *IR desired discrepancy* is the difference between the IR's current knowledge and what the IP thinks the IR would desire to have. The *IP desired discrepancy* is the difference between the IR's current knowledge and the level of knowledge that the IP desires for the IR. A series of factor analyses were conducted and are explained in the results section as they pertain to Research question 1, which questions the underlying dimensions of knowledge discrepancy for IPs in the TMIM model.

Emotion

Adapted from Fowler and Afifi (2011), participants were asked "*Think about how much you knew and how much your family member knew about your diagnosis when you first found out and before you told them,"* and rate the degree to which they experienced a list of 10 possible emotional responses as a result (upset, anxious, distressed, frustrated, sad, scared, guilty, worried, nervous, and happy). Responses were collected on a six-point Likert-type scale (1 = *not at all*, 3 = *moderately*, and 6 = *extremely*). Because there is no established strategy for determining which of the negative emotions should be tested in the TMIM model, a principal components analysis (PCA) with promax rotation was

Table 1: Items, mean, standard deviation, alpha reliability, and PCA factor loadings for emotion measures.

Items	Factor Loading	M	SD
Negative Emotion [M(SD)= 3.32(1.33) ; α = .93]			
Upset	.81	3.08	1.62
Anxious	.84	3.46	1.54
Distressed	.86	3.27	1.56
Worried	.83	3.64	1.63
Nervous	.87	3.62	1.64
Sad	.88	3.47	1.72
Scared	.85	3.64	1.74
Frustrated	.74	3.01	1.65

conducted on the nine negative emotion items. Promax rotation is an oblique rotation that allows items to be correlated, which is the preferred method in communication research because most communicative constructs are not independent of one another (Park, Dailey, & Lemus, 2002). The Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity were significant, KMO = .91, x^2 = 1103.69, p < .001, indicating appropriateness of the data for conducting a factor analysis. One factor emerged with an eigenvalue greater than one and accounting for 66.39% of the total amount of variance. Adhering to the criterion outlined by McCroskey and Young (1979), items with a high primary loading but also a secondary factor loading above .40 were removed. After removing one item, guilty, the PCA was conducted again. The final structure consisted of one factor explaining 74.6% of the variance; therefore, a unidimensional scale was created by averaging responses on these individual emotions (upset, anxious, distressed, worried, nervous, frustrated, sad, and scared). Table 1 displays the factor loadings, items, mean, standard deviation, and alpha reliability for the negative emotion measure. The item measuring happy is included separately in the analyses to represent positive emotional response (M = 1.86; SD = 1.34).

Outcome expectancy

Adapted from previous TMIM measures of outcome expectancy (Afifi & Afifi, 2009; Afifi et al., 2006; Dillow & Labelle, 2014; Fowler & Afifi, 2011) seven Likert-type items were used measuring the extent to which participants believed the outcome of disclosing their diagnosis to a particular family member would result in positive or

negative outcomes (See Appendix D). A sample item is "Talking to my family about my cancer diagnosis would have ____." Participants indicated their response on a scale ranging from *a lot more negatives than positives* (1) to *a lot more positives than negatives* (7), with (4) reflecting *about as many positives as negatives*. Reliability for this scale was α = .93 (*M* = 4.72; *SD* = 1.50).

Efficacy assessments

Adapted from previous TMIM measures of efficacy assessments (Afifi & Afifi, 2009; Afifi et al., 2006; Fowler & Afifi, 2011) and previous literature on communication efficacy (Afifi & Caughlin, 2006; Afifi & Steuber, 2009), three dimensions were measured for the IP (See Appendix E for the full list of items). Nelson and Donovan (2014) found that communication efficacy, target efficacy, and coping efficacy were the main assessments IPs made when deciding to disclose to family members. *Communication efficacy*, conceptualized as the IP's confidence in their ability to disclose the diagnosis to others, was measured using five seven-point Likert-type scale items tapping their perceived ability to communicate the information (e.g., "I knew how to talk to my family member about my cancer diagnosis"). The communication efficacy scale obtained a reliability of α = .93 (*M* = 3.90; *SD* = 1.58). *Target efficacy*, which is their perception of the family member's ability to cope with the disclosure, was measured using three items (e.g., "At that time, I knew my family member would be able to fully cope with my disclosure, whatever the reaction would be."). The target efficacy scale obtained a reliability of α = .93 (*M* = 4.25; *SD* = 1.57). Lastly, *coping efficacy*, which is

the IP's perceived ability to cope with the reactions of the family member, was measured using four items (e.g., "I would have no problem coping with my family member's reaction to my cancer diagnosis, whatever that may be."). The coping efficacy scale obtained a reliability of α = .94 (*M* = 4.35; *SD* = 1.58). For all items, participants were asked to rate the degree to which they agreed on a seven-point Likert-type scale ranging from *Strongly disagree* (1) to *Strongly agree* (7). Higher scores on all the subscales correspond to higher efficacy.

Disclosure Depth & Breadth

Depth and breadth were measured as qualities of disclosure and were adapted from Chechton and Greene (2012). See Appendix F for a full list of items. Depth, or degree of detail disclosed, was measured using five Likert-type items such as, "My family member and I only talked about superficial issues related to my health condition." Breadth, or range of topics disclosed, was measured using six Likert-type items such as "Communicating about my health condition was limited to specific topics." Participants rated the extent to which they agreed with each statement on a five point Likert-type scale, ranging from *Strongly disagree* (1) to *Strongly agree* (5), with higher scores indicating more depth and more breadth of disclosure. Previous studies have obtained an alpha of .75 for depth and .82 for breadth (Chechton & Greene, 2012). However, the present study obtained a reliability of α = .62 for depth and .77 for breadth. To maintain the integrity of the data, the established measure, and to obtain good inter-item reliability through a high Cronbach's alpha for the present data, a series of CFAs using Amos were

conducted to ensure the appropriateness of considering these items as a unidimensional construct (Hunter & Gerbing, 1982). Model fit was assessed using the model's chi-square and model fit indices: comparative fit index (CFI) greater than .95, standardized root mean square residual (SRMR) not greater than .08, and root mean square error of approximation (RMSEA) not greater than .08 (Bentler, 1990; Kline, 2011; MacCallum, Browne, & Sugawara, 1996).

The first model with all 5 items for depth and six items for breadth indicated poor fit according to the chi-square test, χ^2 (N = 157, df = 43) = 163.01, $p < .05$, CFI = .82, and RMSEA = .13. Inspection of the paths revealed that although all were significant, four items had low factor loadings (.29-.34), therefore, two items from depth ("I had a heart-to-heart talk with my family member about my health condition" and "I shared my innermost fears about my health condition with my family member") and two items from breadth ("I discussed a wide variety of issues related to my health condition" and "I talked about a lot of topics related to my health condition") were deleted. A CFA of the modified model demonstrated good fit to the data, χ^2 (N = 157, df = 43) = 16.54, $p > .05$, CFI = .99, and RMSEA = .04, distinguishing depth and breadth as two separate unidimensional scales. Thus a composite score was created for each by averaging the three items for depth of disclosure (α = .71, M = 3.03, SD = .98) and then the four items for breadth of disclosure (α = .85, M = 2.83, SD = 1.01). Table 2 includes items, regression weights, means, standard deviations, and alpha reliability scores for the depth and breadth measures used in the analyses.

Table 2: Regression weights, items, mean, standard deviation, and alpha reliability for Depth and Breadth

Items	Beta Weights
Depth [M(SD)= 3.03 (.98) ; α = .71]	
2. I didn't want to worry my family member about little things related to my health condition.[R]	.41
3. My family member and I only talked about superficial issues related to my health condition.[R]	.72
4. I held back from sharing intimate issues about my health condition with my family member.[R]	.95
Breadth [M(SD)= 2.83 (1.01) ; α = .85]	
7. Communicating about my health condition was limited to specific topics. [R]	.68
8. There were some issues related to my health condition that I did not talk about. [R]	.83
10. There were some areas related to my health condition that I avoided discussing.[R]	.82
11. I am hesitant to share small health concerns. [R]	.71

Previous research has conceptualized depth and breadth as one latent construct – open communication (Venetis et al., 2014). Open communication is defined as the sharing of feelings, thoughts, and information and depth and breadth are characteristics of open communication (Altman & Taylor, 1973). Therefore, depth and breadth were treated as one latent "open communication" construct in the analyses. A two-factor model could not be tested because CFA in AMOS requires at least three first order factors for every second order factor (Bowen & Guo, 2011) so based on theory and previous literature, depth and breadth were included as the latent construct of open communication in the analyses.

Topic Avoidance

Donovan-Kicken and Caughlin (2010) developed a measure of topic avoidance specifically for those coping with cancer because previous literature demonstrates that certain topics avoided are unique to this context. Participants in the present study were presented with the prompt "*When individuals are disclosing their diagnosis to someone, there might be cancer-related topics that they avoid discussing. Please consider how strongly you agree that YOU AVOIDED talking to your family member about these topics when you first disclosed your diagnosis."* And then participants were asked to rate the extent to which "*I avoided talking to my family member about…"* a list of topics on a five-point Likert-type scale ranging from *Strongly disagree* (1) to *Strongly agree* (5). For this study, the topic avoidance measure encompassed five categories: *Treatment*, which involved treatment plans and side effects, was assessed with five items (e.g., "all aspects

of my treatment") and obtained a reliability of α = .90, (*M* = 2.79, *SD* = 1.19). *Being a burden*, which involved feelings about being a burden to others in terms of chores and financial dependence, was assessed with eight items (e.g., "whether I am a burden on my family member") and obtained a reliability of α = .90 (*M* = 2.99, *SD* = 1.05). *Feelings*, which involved general feelings and emotions surrounding the cancer, was assessed with twelve items (e.g., "some or all of my concerns") and obtained a reliability of α = .94. (*M* = 3.03, *SD* = 1.07). *Healthcare*, which involved healthcare experiences, was assessed with four items (e.g., "experiences with health care providers") and obtained a reliability of α = .93 (*M* = 2.80, *SD* = 1.24). *Death*, which involved issues of dying, was assessed with eight items (e.g., "the chance that I might die") and obtained a reliability of α = .91, *M* = 3.07, *SD* = 1.12). Consistent with previous research (Donovan-Kicken & Caughlin, 2010), the items were averaged to obtain an overall topic avoidance score with higher scores reflecting greater topic avoidance (α = .98, *M* = 2.94, *SD* = .99).

Chapter 4: Results

PLAN OF ANALYSIS

The overall purpose of this research was to test if the TMIM is an adequate framework to examine information provision and to better understand the TMIM process for IPs as the initiator. A number of analyses were conducted in order to test the fit of the TMIM model on the present data involving cancer patients as IPs. The analyses are described below in order to better understand how the TMIM applies to information provision and if the interpretation, evaluation, and decision phase are present for IPs when presented with a diagnosis to disclose to a particular family member.

Descriptive statistics, including means, standard deviations, Pearson product-moment correlations, and Cronbach's alpha (α) for all variables included in the primary data set are reported in Table 3. As an initial step, bivariate correlations among the variables in the study (e.g., knowledge discrepancy, emotion, outcome expectancy, efficacy, depth, breadth, and topic avoidance) were examined. Then, the unidimensionality of the measures in the study was examined. Structural equation modeling (SEM) using Amos 21 with maximum likelihood estimation was used to test all hypothesized path models. Model fit was assessed using the model's chi-square and model fit indices: comparative fit index (CFI) greater than .95, Tucker-Lewis index (TLI) greater than .95, standardized root mean square residual (SRMR) not greater than .08, and root mean square error of approximation (RMSEA) not greater than .08 (Bentler,

1990; Hu & Bentler, 1999; Kline, 2011; MacCallum et al, 1996). Some scholars have suggested that a .10 cut-off for RMSEA demonstrates acceptable fit. For the majority of the analyses the more conservative cut-off of .08 was used but in a few cases when the other fit indices were acceptable, the .10 cut off was considered (Brown & Cudeck, 1993). Given that the goal of the present study was to determine if TMIM is a useful framework for information provision, when model fit was poor, modification and model trimming was employed to improve model fit (Kline, 2010).

In order to test the individual path hypotheses, the path coefficients will be examined for the hypothesized models. Path analysis is an appropriate method for analyzing this data because it can reveal the magnitude and significance of hypothesized causal connections between variables and offer a clear understanding of how the components of TMIM are related.

PRELIMINARY ANALYSES

Bivariate correlations were examined first and reported in Table 3. Second, the factor structure of efficacy assessments was important to examine because CFA analyses have indicated different structures in previous studies, ranging from a three factor latent construct to no latent construct at all (Afifi, 2009; Dillow & Labelle, 2014; Fowler & Afifi, 2011). Therefore, given that the present study is using similar guidelines in the measurement of TMIM for IP, a CFA was conducted on the three factors of efficacy assessments: communication, coping, and target efficacy. The CFA conducted to assess the appropriateness of the three factor model as one latent factor indicated close to

acceptable fit, χ^2 (N = 157, df = 51) = 112.53, p < .05, CFI = .97, and RMSEA = .09. However, upon examination of the regression weights and squared multiple correlations, communication efficacy obtained a low regression weight (β = .42) and an even lower squared multiple correlation (R^2 = .17), indicating that it was not strongly associated with the latent factor nor did the latent factor explain much of the variance in the communication efficacy construct. Therefore, this factor was deleted from the model. Afifi et al. (2006) found support for their structural model when including efficacy as a two factor latent construct. A two factor model cannot be tested because CFA in AMOS requires at least three first order factors for every second order factor (Bowen & Guo, 2011) so based on theory and previous literature, so in subsequent analyses the two factor latent construct (coping efficacy and target efficacy) was used.

The data were obtained from three different recruitment sources: student recruitment, community advertisements, and paid Mturk workers. Therefore, the next preliminary step was to examine if the source influenced any factors in the study. A one-way ANOVA was conducted to examine any significant differences on the model variables (negative emotion, positive emotion, knowledge discrepancy, outcome expectancy, coping efficacy, target efficacy, topic avoidance, breadth and depth) between the three different sample sources. Indeed, results indicated that participants recruited from the community were significantly different from the student-recruited participants

Table 3: Means, standard deviations, correlations, and Cronbach's Alpha (α) for all variables

	α	M(SD)	1	2	3	4	5	6	7	8	9	10
1. IP Desired	.94	4.74(1.65)	-	.35***	-.28***	-.41***	.38***	.14*	-.02	-.55***	.54***	.55***
2. IR Desired	.80	5.37(1.28)	.35***	-	.03	-.25**	.35***	.16*	.16*	-.33***	.18*	.16*
3. Negative Emotion	.93	3.28(1.32)	-.28***	.03	-	.08	-.26**	-.38***	-.30***	.35***	-.34***	-.31***
4. Positive Emotion	-	1.87(1.34)	-.41***	-.25**	.08	-	-.02	.12	.17*	.32***	-.14*	-.10
5. Outcome Expectancy	.93	4.72(1.51)	.38***	.35***	-.26**	-.02	-	.61***	.54***	-.28***	.29***	.31***
6. Coping Efficacy	.94	4.34(1.59)	.14*	.16*	-.38***	.12	.61***	-	.74***	-.17*	.23**	.27***
7. Target Efficacy	.93	4.25(1.58)	-.02	.16*	-.30***	.17*	.54***	.74***	-	-.06	.05	.12
8. Topic Avoidance	.98	2.97(.98)	-.55***	-.33***	.35***	.32***	-.28**	-.17*	-.06	-	-.48***	-.57***
9. Depth	.71	3.03(.98)	.54***	.18*	-.34***	-.14*	.29***	.23**	.05	-.48***	-	.71***
10. Breadth	.85	2.83(1.01)	.55***	.16*	-.31***	-.10	.31***	.27***	.12	-.57***	.71***	-

Note: *p < .05, **p < .01, ***p<.001

and Mturk workers in some important ways. Specifically, the community sample reported less topic avoidance (M = 2.09, SD = .73, N = 19) than the student recruited sample (M = 3.03, SD = .95, N = 19) and Mturk workers (M = 3.11, SD = .95, N = 19), F(2, 153) = 9.86, $p < .001$. Second, the community sample (M = 4.14, SD = .81, N = 19) reported more depth of disclosure than the student recruited sample (M = 2.75, SD = .86, N = 19) and the Mturk workers (M = 2.92, SD = .92, N = 19), F(2, 153) = 17.3, $p < .001$. The community sample also reported more breadth of disclosure (M = 3.63, SD = .90, N = 19) than the student recruited sample (M = 2.87, SD = 1.06, N = 19) and the Mturk workers (M = 2.67, SD = .94, N = 19), F(2, 153) = 7.97, $p < .01$.

Furthermore, the community sample reported more IP knowledge discrepancy (M = 6.64, SD = .48, N = 19) than the student recruited sample (M = 4.73, SD = 1.46, N = 19) and the Mturk workers (M = 4.39, SD = 1.63, N = 19), F(2, 153) = 17.96, $p < .001$. The community sample reported more IR knowledge discrepancy (M = 6.23, SD = .86, N = 19) than both the student recruited sample (M = 5.02, SD = 1.19, N = 19) and the Mturk workers (M = 5.34, SD = 1.31, N = 19), F(2, 153) = 6.06, $p < .01$. They also reported more positive outcome expectancy (M = 5.65, SD = 1.64, N = 19) than both the student recruited sample (M = 4.22, SD = 1.63, N = 19) and the Mturk workers (M = 4.73, SD = 1.51, N = 19), F(2, 153) = 6.11, $p < .01$. Finally, the community sample also reported less positive emotions (M = 1.11, SD = .32, N = 19) than the Mturk workers (M = 1.96, SD = 1.41, N = 19), F(2, 153) = 3.61, $p < .05$. Considering the community group significantly

Table 4: Means, standard deviations, correlations, and Cronbach's Alpha (α) for all variables after community sample deleted

	α	M(SD)	1	2	3	4	5	6	7	8	9	10
1. IP Desired	.93	4.48(1.58)	-	.27**	-.26**	-.37***	.35***	.11	.01	-.50***	.46***	.51***
2. IR Desired	.83	5.25(1.28)	.27**	-	.04	-.22**	.33***	.15*	.20**	-.28***	.09	.09
3. Negative Emotion	.93	3.37(1.31)	-.26**	.04	-	.07	-.22**	-.38***	-.31***	.32***	-.33***	-.32***
4. Positive Emotion	-	1.97(1.39)	-.37***	-.22**	.07	-	.04	.17*	.18*	.28***	-.05	-.03
5. Outcome Expectancy	.93	4.59(1.44)	.35***	.33***	-.22**	.04	-	.61***	.56***	-.21**	.23**	.29***
6. Coping Efficacy	.88	4.27(1.55)	.11	.15*	-.38***	.17*	.61***	-	.75***	-.11	.20**	.30***
7. Target Efficacy	.93	4.29(1.52)	.01	.20**	-.31***	.18*	.56***	.75***	-	-.06	.10	.18*
8. Topic Avoidance	.97	3.09(.95)	-.50***	-.28***	.32***	.28***	-.21**	-.11	-.06	-	-.40***	-.519***
9. Depth	.65	2.87(.90)	.46***	.09	-.33***	-.05	.23**	.20**	.10	-.40***	-	.68***
10. Breadth	.84	2.72(.97)	.51***	.09	-.32***	-.03	.29***	.30***	.18*	-.52***	.68***	-

Note: *p < .05, **p < .01, ***p<.001

differed from the other two groups on several variables, the participants from the community sample (N =17) were removed from the structural model analyses, resulting in a final sample size of 137. Descriptive statistics, including means, standard deviations, Pearson product-moment correlations, and Cronbach's Alpha (α) for all variables included in the primary data set (after the community sample was removed) are reported in Table 4[3].

Lastly, independent samples t-tests of mean differences for family history of cancer and relationship type for the variables under investigation were conducted in order to determine if family history or family type should be entered as control variables in subsequent analyses. Previous research has demonstrated that relationship type (i.e., parent, child, sibling, etc.) and family history of cancer can influence self-disclosure (Andersen, Smith, Meischke, Bowen, & Urban, 2003; Finkenauer, Engels, Branje, & Meeus, 2004; Vangelisti & Caughlin, 1997). Family type was categorized into immediate (i.e., daughter, son, mother, father, or sibling) or extended family member (i.e., grandparent, grandchild, niece, nephew, cousin). In this study, there were no significant differences found in emotional response, outcome expectancy, efficacy assessments, topic avoidance, or open communication. Thus, neither relationship type or family history were included as control variables.

---

[3] The community sample was dropped before all the CFAs and other analyses were conducted and the descriptive and inferential statistics are reflective of the final sample (N = 137).

MAIN ANALYSES

The current study explores whether and how TMIM constructs apply to cancer diagnosis disclosures and how these variables influence qualities of disclosure. Below is a review of hypotheses and research questions:

RQ1: What are the underlying dimensions of knowledge discrepancy in TMIM?

H1: The size of knowledge discrepancy is positively associated with the intensity of negative emotional response.

RQ2: What is the relationship between knowledge discrepancy and positive emotional response?

RQ3: To what extent does each underlying dimension of knowledge discrepancy predict phases of the TMIM model?

H2a: Intensity of negative emotional response to knowledge discrepancy is positively associated with depth and breadth of disclosure.

H2b: Intensity of positive emotional response to knowledge discrepancy is inversely associated with depth and breadth of disclosure.

H2c: Intensity of negative emotional response to knowledge discrepancy is inversely associated with topic avoidance.

H2d: Intensity of positive emotional response to knowledge discrepancy is positively associated with topic avoidance.

H3a: The intensity of negative emotional response is negatively associated with positive outcome assessments such that more negative emotion is associated with less positive outcome assessments.

H3b: The intensity of positive emotional response is positively associated with positive outcome assessments such that more positive emotion is associated with more positive outcome assessments.

H4a: The intensity of negative emotional response is negatively associated with efficacy assessments such that more negative emotion is associated with lower efficacy.

H4b: The intensity of positive emotional response is positively associated with efficacy judgments, such that more positive emotion is associated with higher efficacy.

H5: Outcome assessments are positively associated with efficacy judgments such that more positive outcome assessment is associated with higher efficacy.

H6: Positive outcome assessments are associated with qualities of information management strategies such that positive outcome assessments will be (a) positively associated with depth and breadth of disclosure and (b) negatively associated with topic avoidance.

H7: Efficacy assessments are associated with qualities of information management strategies such that efficacy assessments will be (a) positively

associated with depth and breadth of disclosure and (b) negatively associated with topic avoidance.

H8: The revised TMIM model will fit the data in the context of diagnosis disclosures when the IP, the cancer patient, is the initiator

Research question 1 was first examined given that it determined the underlying dimensions to be entered into the structural model for the IPs. Research question 1 addressed the underlying structure of the knowledge discrepancy construct. Given that the knowledge discrepancy measure was created for the purpose of this study, a PCA with promax rotation was first conducted to assess the underlying structure of knowledge discrepancy. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity were significant, KMO = .87, χ^2 = 1197.58, $p < .001$, indicating appropriateness of the factor analysis. The PCA extracted three factors with eigenvalues greater than one; however, examination of the scree plot (Figure 1) indicated that there were two significant factors accounting for 58.02% of the total amount of variance and the third factor only added 8.32%. The scree plot is a reliable assessment of the factor structure because it visually displays the components that explain the most variance by organizing them in descending order, thus the factor decision can be made based on when the line begins to create a relatively flat line (Cliff & Hamburger, 1967; Zwick & Velicer, 1986).

The PCA was conducted again, this time restricting the number of factors to be extracted to two. The two factors accounted for 58.02% of the total variance. Adhering to the criterion outlined by McCroskey and Young (1979), items with a primary loading

above .60 but also a secondary factor loading above .40 were removed. After removing four items ("At that time, I thought my diagnosis should be disclosed to my family member," At that time, I thought I should know more about my cancer diagnosis than my family member," "At that time, I thought my family member knew less than they would like to know about my cancer diagnosis prior to disclosure" and "At that time, I thought my family member knew less than they should know about my cancer diagnosis"), the PCA was conducted again and the two factors accounted for 68.94% of the total variance. Table 5 includes items, factor loadings, factor labels, means, standard deviations, and alpha reliability scores for each knowledge discrepancy factor. Loadings less than .40 were omitted to improve clarity.

The PCA revealed two factors, with the items for state of knowledge and IP desired loading on the same factor. This prompted a revisit of the knowledge discrepancy measure to determine if the wording of the items may have influenced them to be interpreted differently than intended. Indeed, the items that were created to measure state of knowledge discrepancy and IP desired knowledge discrepancy were all centered around desirability or preferences, asking participants if they were okay with or thought the discrepancy was desirable or right. Therefore, based on the measure, state of knowledge discrepancy was not discernably different than the conceptualization of the IP desired knowledge discrepancy, which is the difference between what the IP thinks the IR should know and what the IR actually knows. Thus the factor analysis results were

Figure 5: Scree Plot for Knowledge Discrepancy PCA

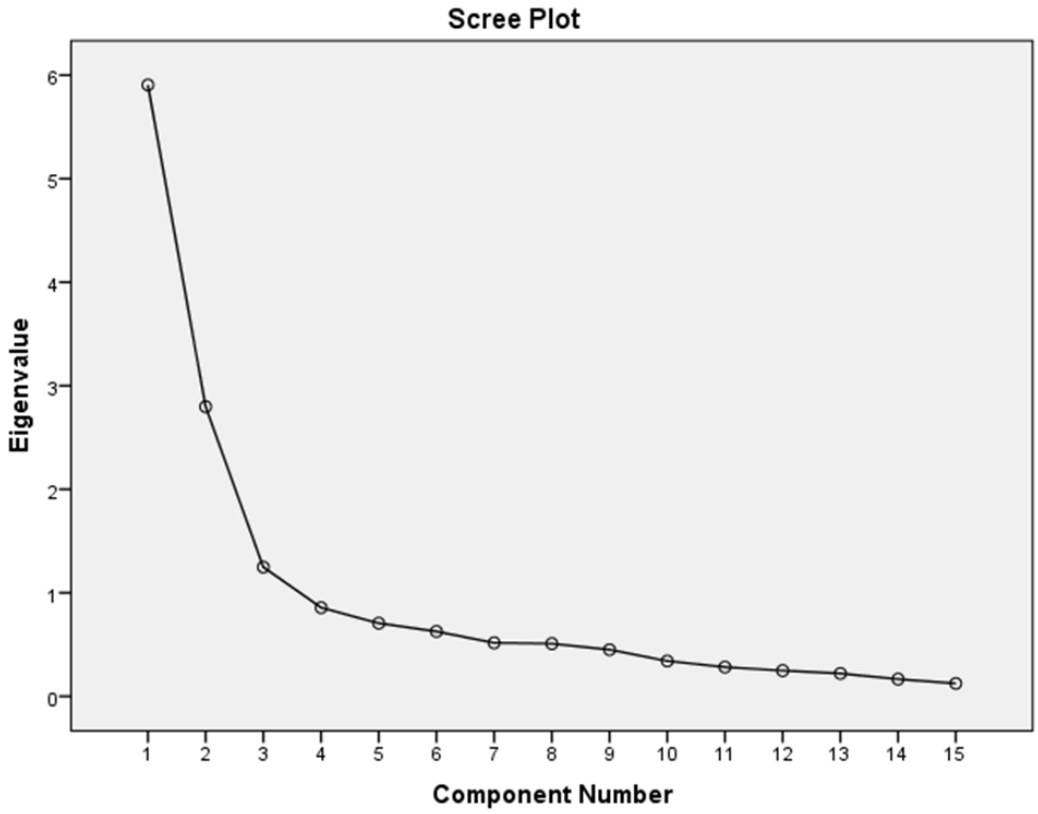


Table 5: Factors, items, means, standard deviations, alpha reliabilities, and loadings for the PCA of knowledge discrepancy

Items	1	2
IP Desired Knowledge Discrepancy [M(SD)= 4.72(1.69) ; α = .94]		
7. At that time, I thought it would be okay if I knew about my cancer but I didn't let my family member know. [R]	.86	
9. At that time, I thought my family member not knowing about my cancer diagnosis was okay because I was the only one who needed to know.[R]	.88	
10. At that time, I thought it was the right thing to do if I knew about my cancer but I didn't let my family member know. [R]	.90	
11. At that time, I thought my diagnosis should remain private from this family member. [R]	.87	
12. At that time, my family member not being aware of my cancer diagnosis was desirable for me. [R]	.75	
14. At that time, I wanted my diagnosis to remain private from this family member.	.86	
15. At that time, I felt that my family member not being aware of my cancer diagnosis was the right thing. [R]	.88	
IR Desired Knowledge Discrepancy [M(SD)= 5.33(1.34) ; α = .82]		
2. At that time, I thought my family member would want to know about my cancer diagnosis.		.85
3. At that time, I thought my family member would wish to know about my cancer diagnosis.		.83
5. At that time, I thought my family member would think they should know about my cancer diagnosis.		.88

deemed appropriate and the two factors were created: IP desired and IR desired knowledge discrepancy.

For additional statistical rigor this underlying structure of knowledge discrepancy was tested by conducting a CFA on the two-factor measurement model of knowledge discrepancy (Kenny, 2012). The CFA indicated acceptable fit, χ^2 (N = 137; df = 34) = 79.63, $p < .01$, CFI = .95, SRMR = .04, TLI = .94, RMSEA = .09. Therefore it appeared that there were two underlying dimensions of perceived knowledge discrepancy, IP desired (α = .94) and IR desired (α = .82). In response to Research Question 1, the underlying structure of knowledge discrepancy consisted of two dimensions: IP desired knowledge discrepancy and IR desired knowledge discrepancy. As a result, the decision was made to test each type of knowledge discrepancy in separate models in order to answer Research question 3, which addressed to what extent each underlying dimension of knowledge discrepancy predicted subsequent phases in the TMIM model. The models also needed to be tested with both positive and negative emotional response. Therefore, two models (positive and negative emotion) with IP desired and two models with IR desired were tested for open communication as the outcome. Then, two models with IP desired and two models with IR desired were tested for topic avoidance, resulting in eight hypothesized models in total. See Figures 8-16 for the hypothesized models.

Hypotheses 1-8 and Research Questions 2 and 3 were integrated into one model predicting the relationships between knowledge discrepancies (IP desired discrepancy and IR desired discrepancy), outcome expectancy, efficacy, and the outcomes (open

communication and topic avoidance)[4]. Organized by TMIM phase, the results of the path analyses for all models are first given. Second, findings for the IP's TMIM model fit in the context of diagnosis disclosures is reviewed followed by the model modifications. See Figures 8 through 15 for hypothesized models and Figures 16 through 23 for final models.

Interpretation Phase

Hypothesis 1 predicted that the size of knowledge discrepancy would be positively associated with the intensity of emotional response and research question 2 addressed the relationship between knowledge discrepancy and positive emotion. Figure 6 demonstrates the names for each path, which mirror the paths listed in Table 6, for the open communication model and these names will be used to reference the path analyses regarding models with open communication as the outcome. Figure 7 demonstrates the names for each path, which mirror the paths listed in Table 6, for the topic avoidance model and these names will be used to reference the path analyses regarding models with topic avoidance as the outcome. Contrary to the prediction, IP desired knowledge discrepancy was negatively related to negative emotion (β = -.26, p < .01) for both outcomes, suggesting that the more IP desired knowledge discrepancy the less negative emotion reported as a response. The paths from IR desired discrepancy to negative

[4] Issue importance is a scope condition of the TMIM, but on average participants reported high issue importance (M = 5.62) so it was not included as a covariate in the analyses.

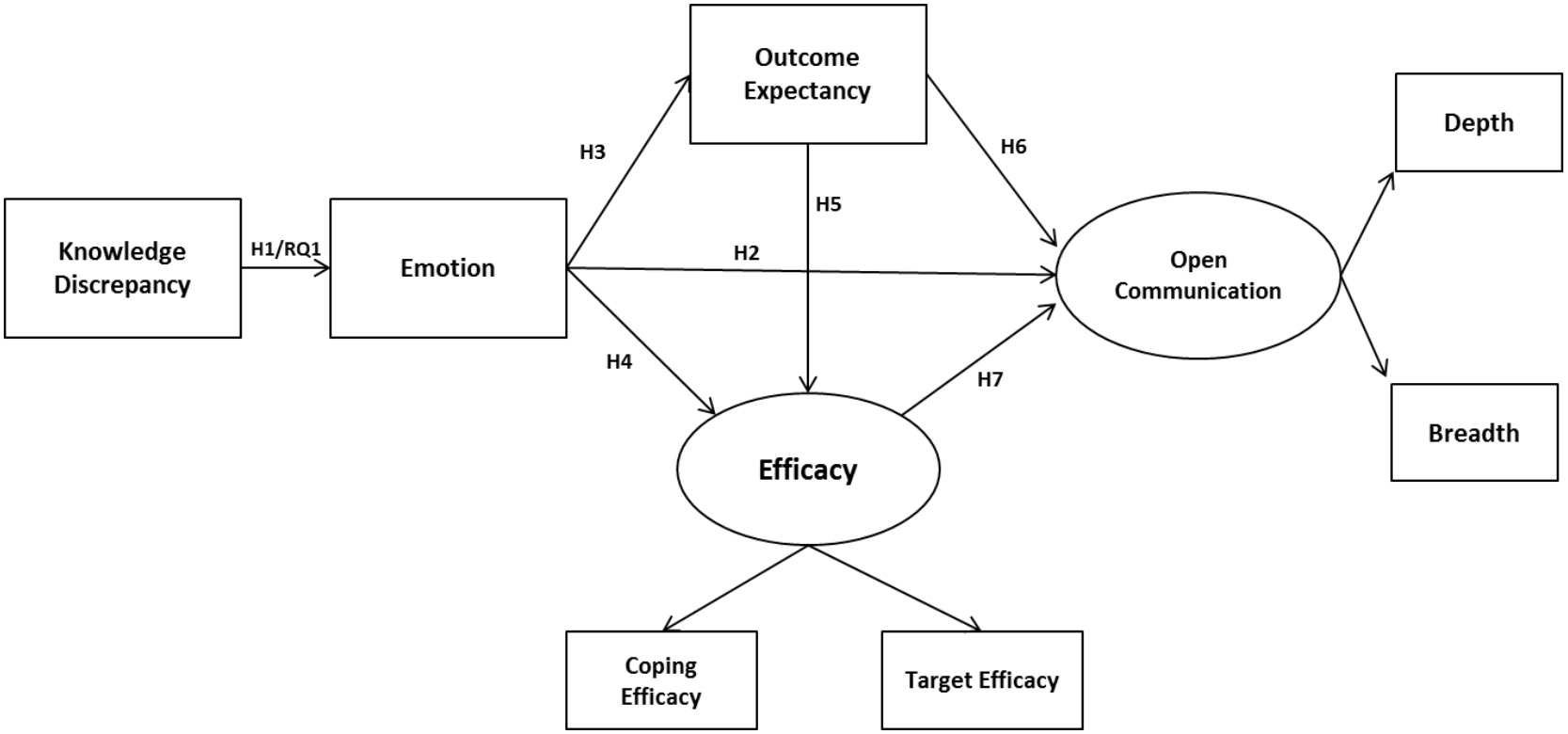


Figure 6: Proposed Conceptual TMIM Model for Open Communication

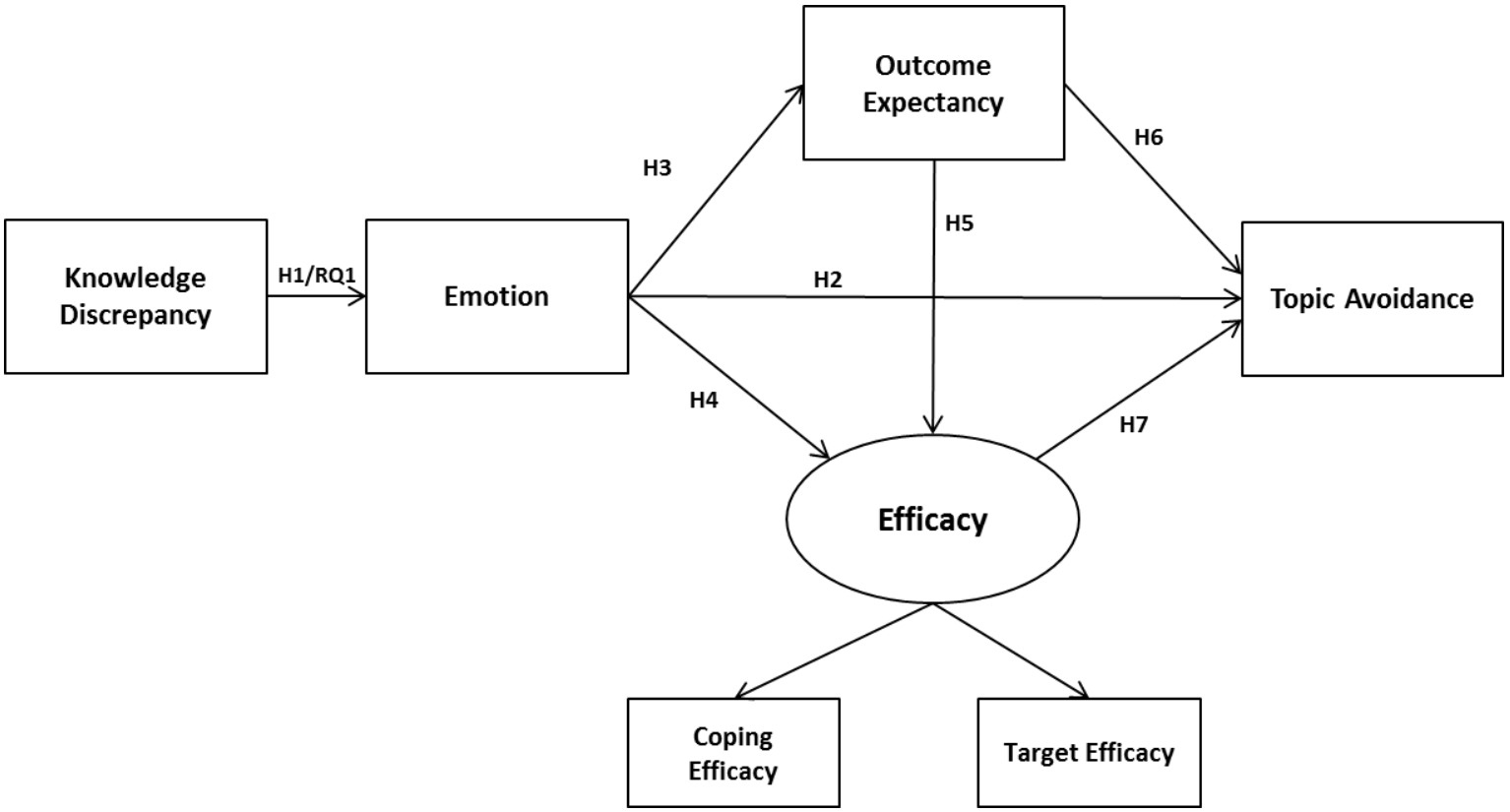


Figure 7: Proposed Conceptual TMIM Model for Topic Avoidance

Table 6: Standardized Regression Weights for All Paths in the Hypothesized Structural Model

	Hypothesized Paths						
	H1	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**
IP Desired Discrepancy Models							
1. IP – Negative – Topic Avoidance	-26**	.35***	-.22**	-.27***	.61***	-.28*	.22
2. IP – Negative – Open Communication	-.26**	-.34**	-.22**	-.27***	.61***	.23	.02
3. IP – Positive- Topic Avoidance	-.37***	.29***	.04	.17*	.67***	-.20	-.02
4. IP – Positive - Open Communication	-.37***	-.09	.04	.16*	.66***	.16	.21
IR Desired Discrepancy Models							
5. IR – Negative - Topic Avoidance	.04	.35***	-.22**	-.27***	.61***	-.28*	.22
6. IR – Negative - Open Communication	.04	-.34**	-.22**	-.27***	.61***	.23	.02
7. IR – Positive - Topic Avoidance	-.22**	.29***	.04	.17*	.67***	-.20	-.02
8. IR – Positive - Open Communication	-.22**	-.09	.04	.16*	.66***	.16	.21

Note: *p < .05, **p < .01, ***p<.00

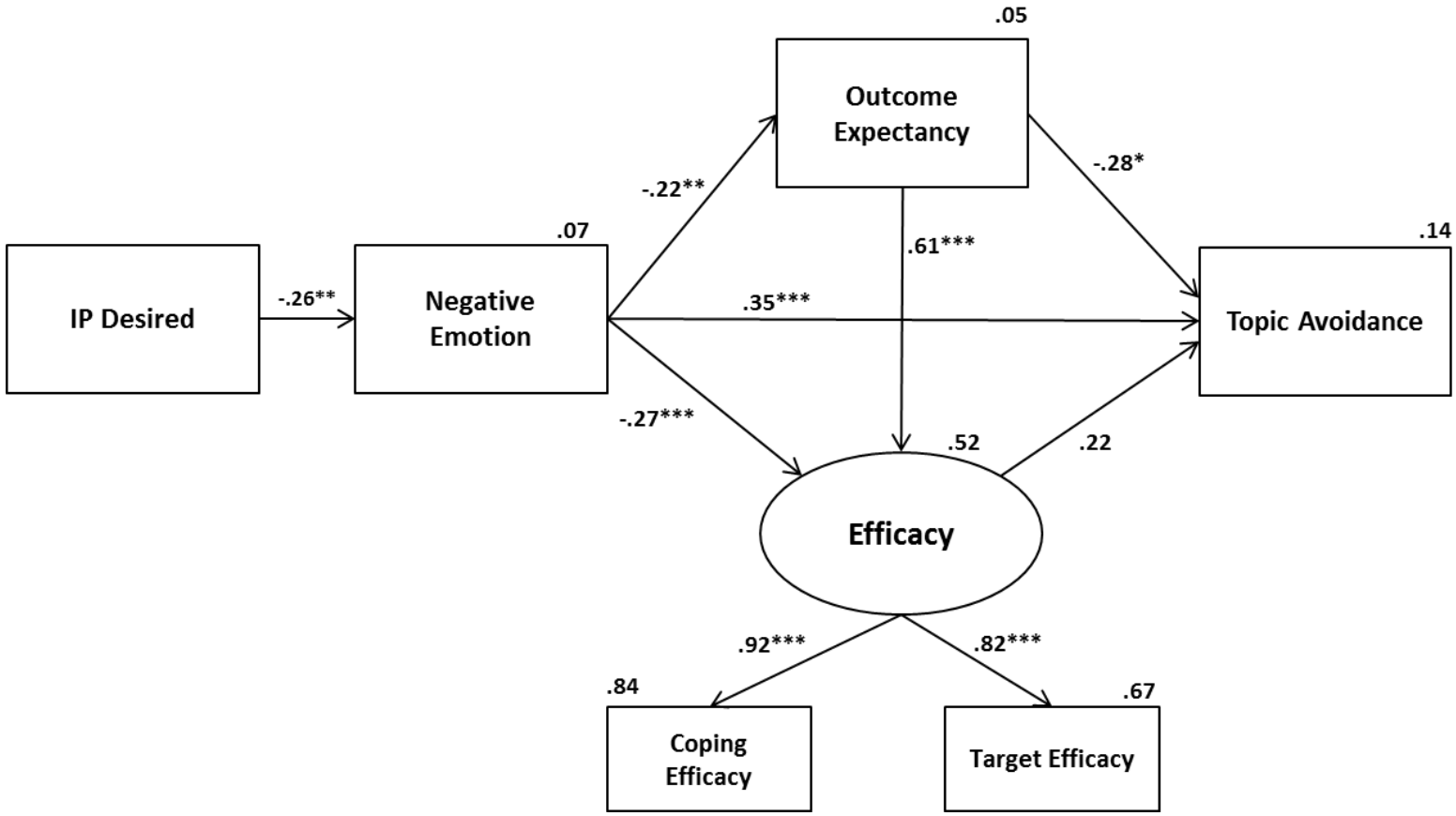


Figure 8: Hypothesized Model 1 for IP – Negative – Topic Avoidance

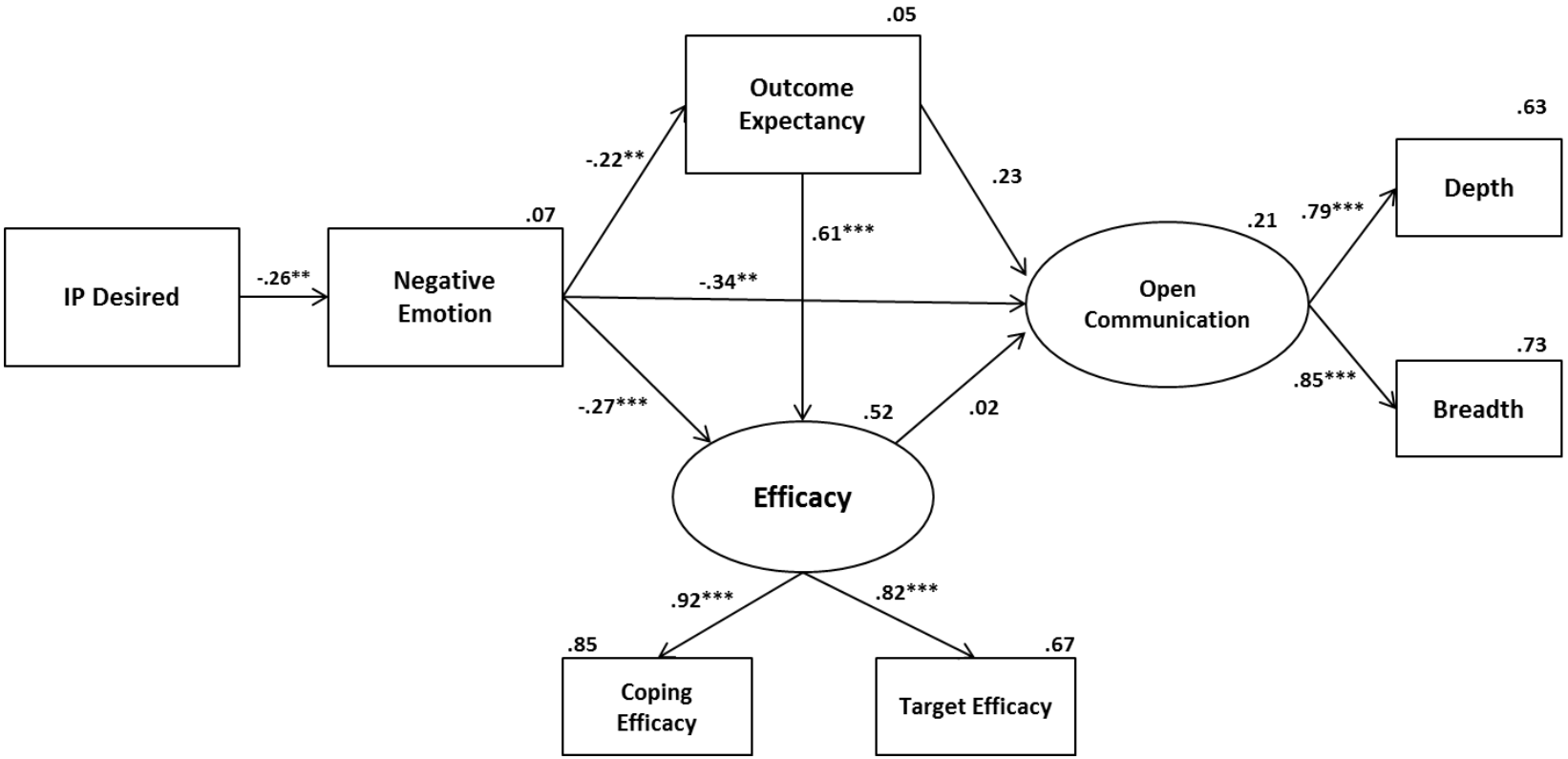


Figure 9: Hypothesized Model 2 for IP – Negative – Open Communication

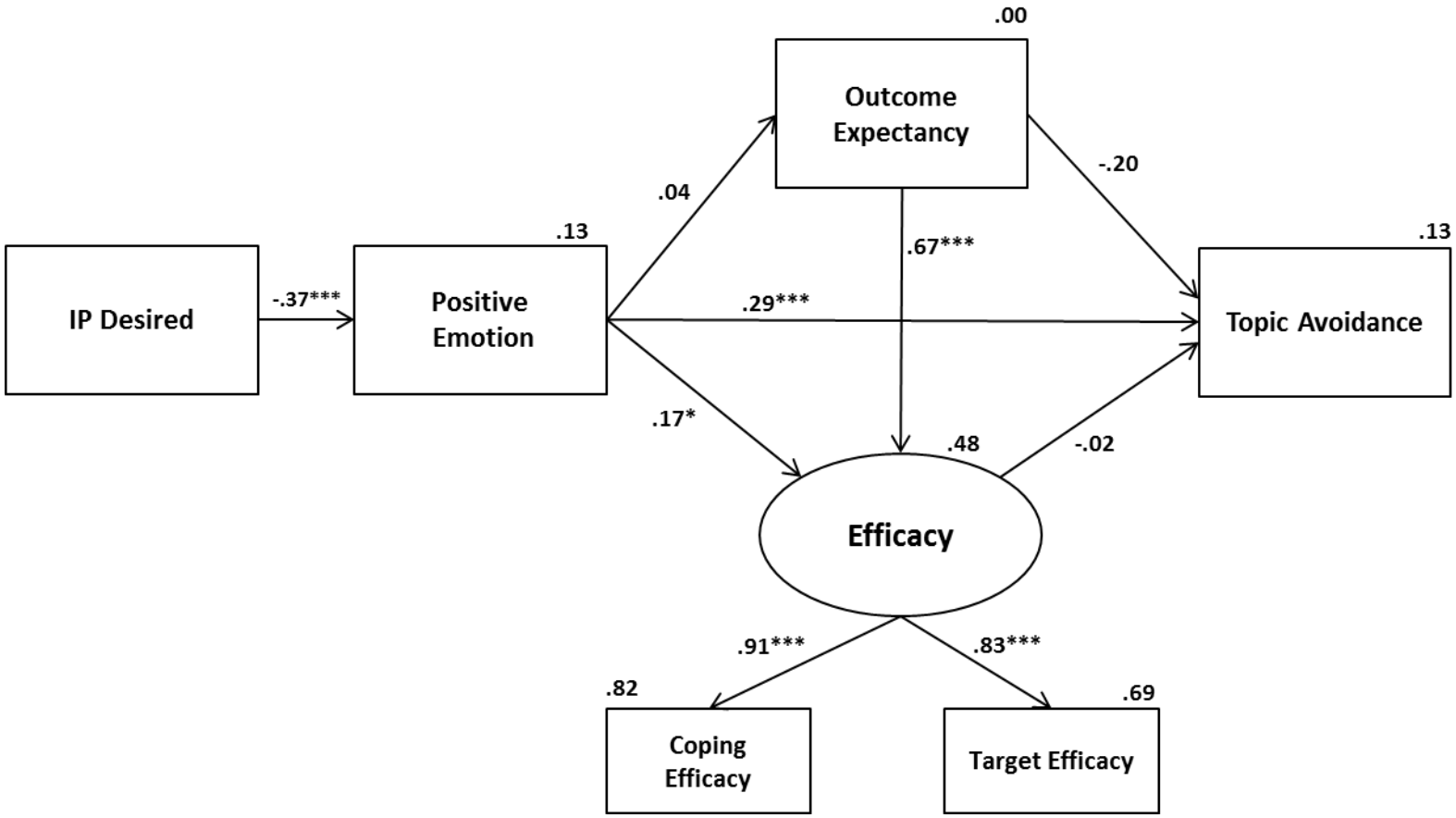


Figure 10: Hypothesized Model 3 for IP – Positive- Topic Avoidance

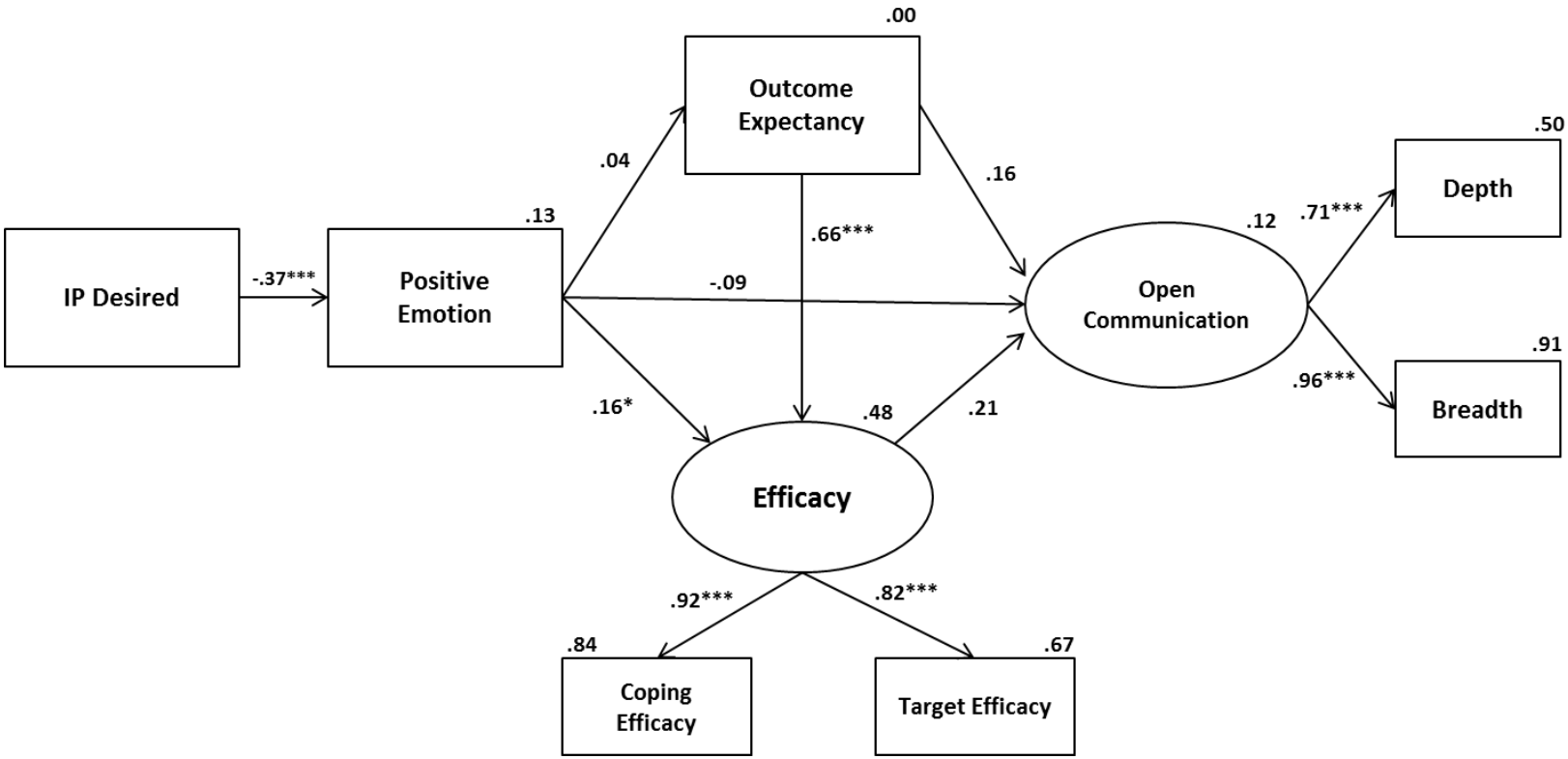


Figure 11: Hypothesized Model 4 for IP – Positive – Open Communication

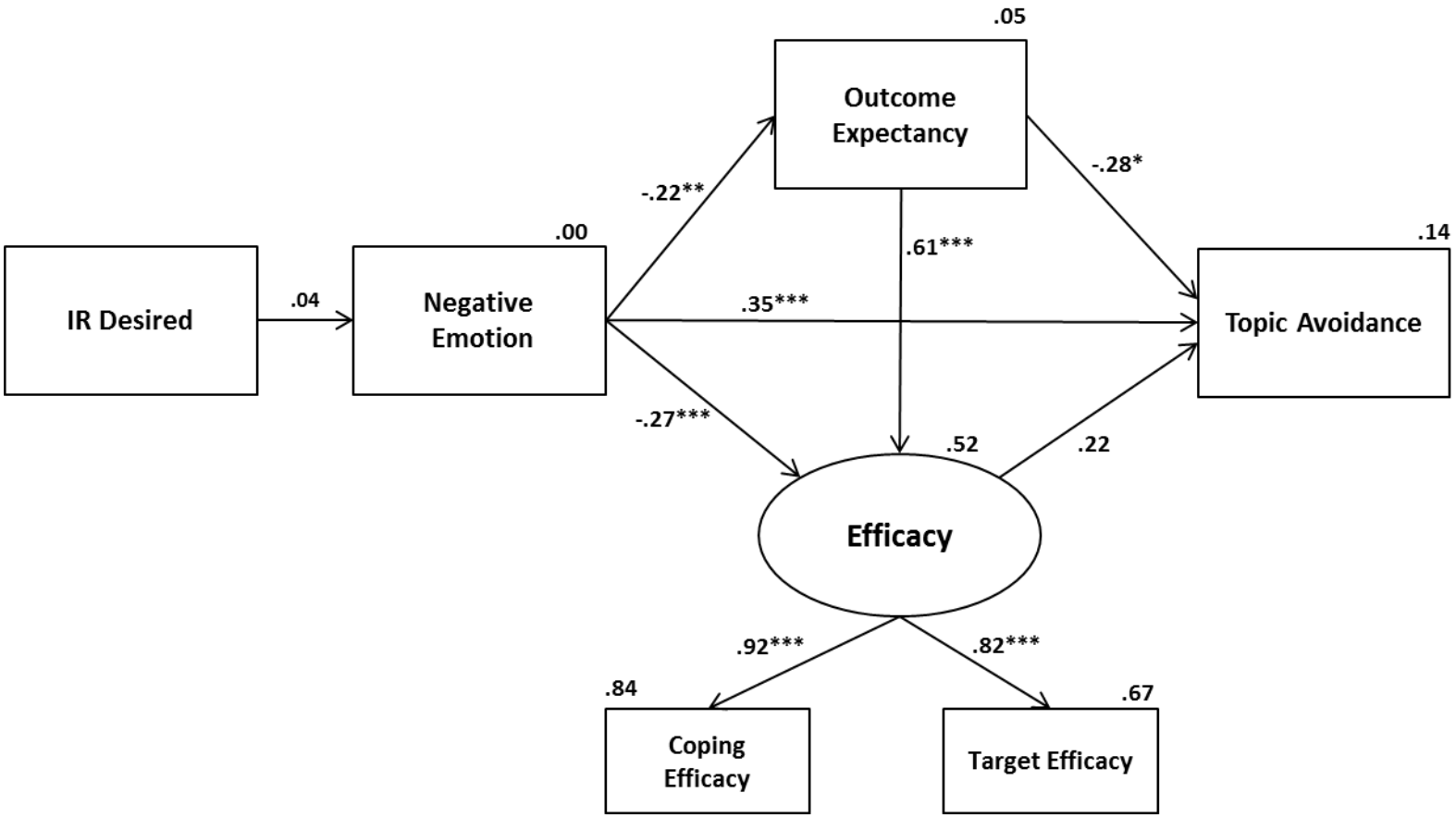


Figure 12: Hypothesized Model 5 for IR – Negative – Topic Avoidance

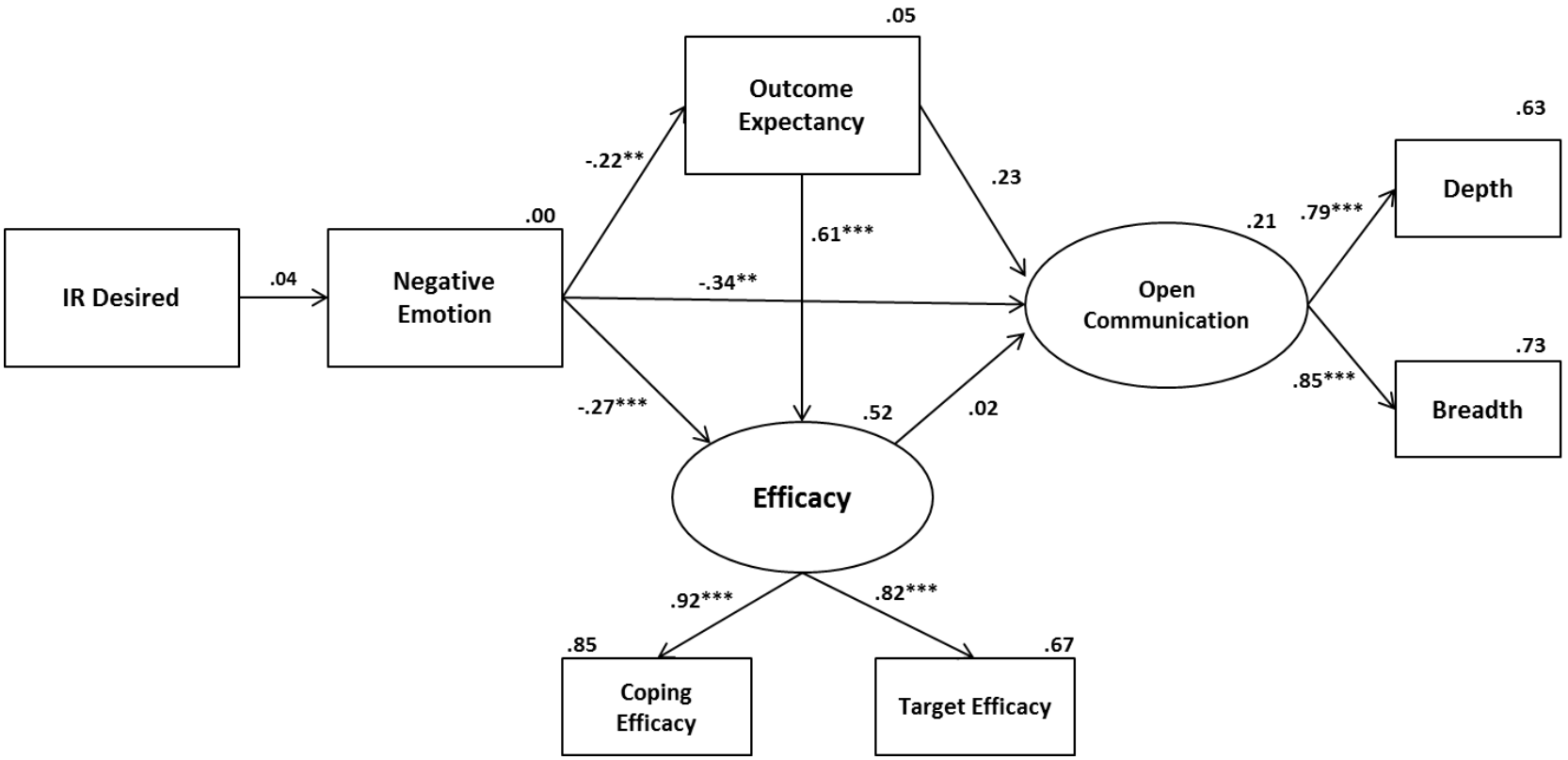


Figure 13: Hypothesized Model 6 for IR – Negative – Open Communication

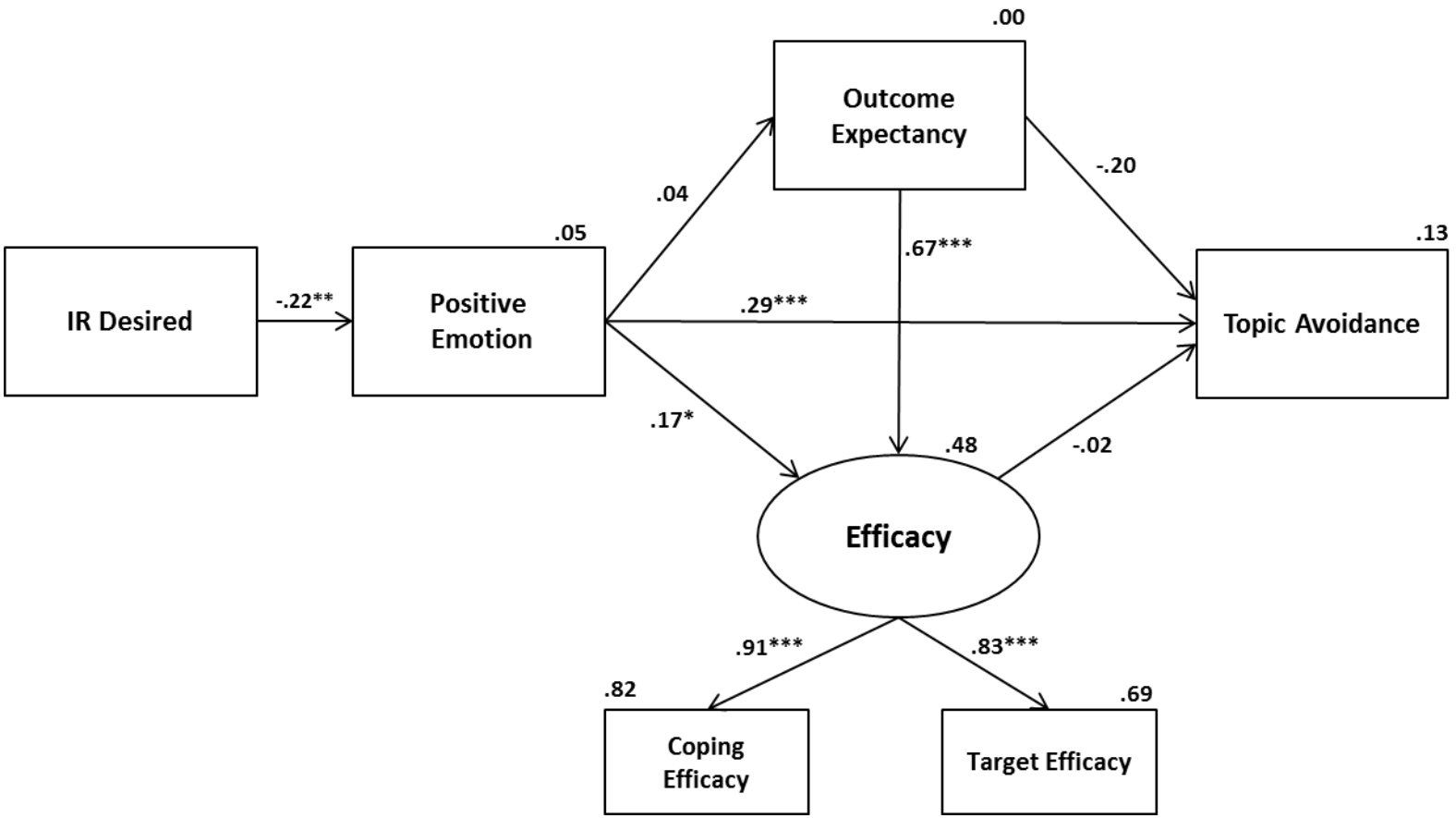


Figure 14: Hypothesized Model 7 for IR – Positive – Topic Avoidance

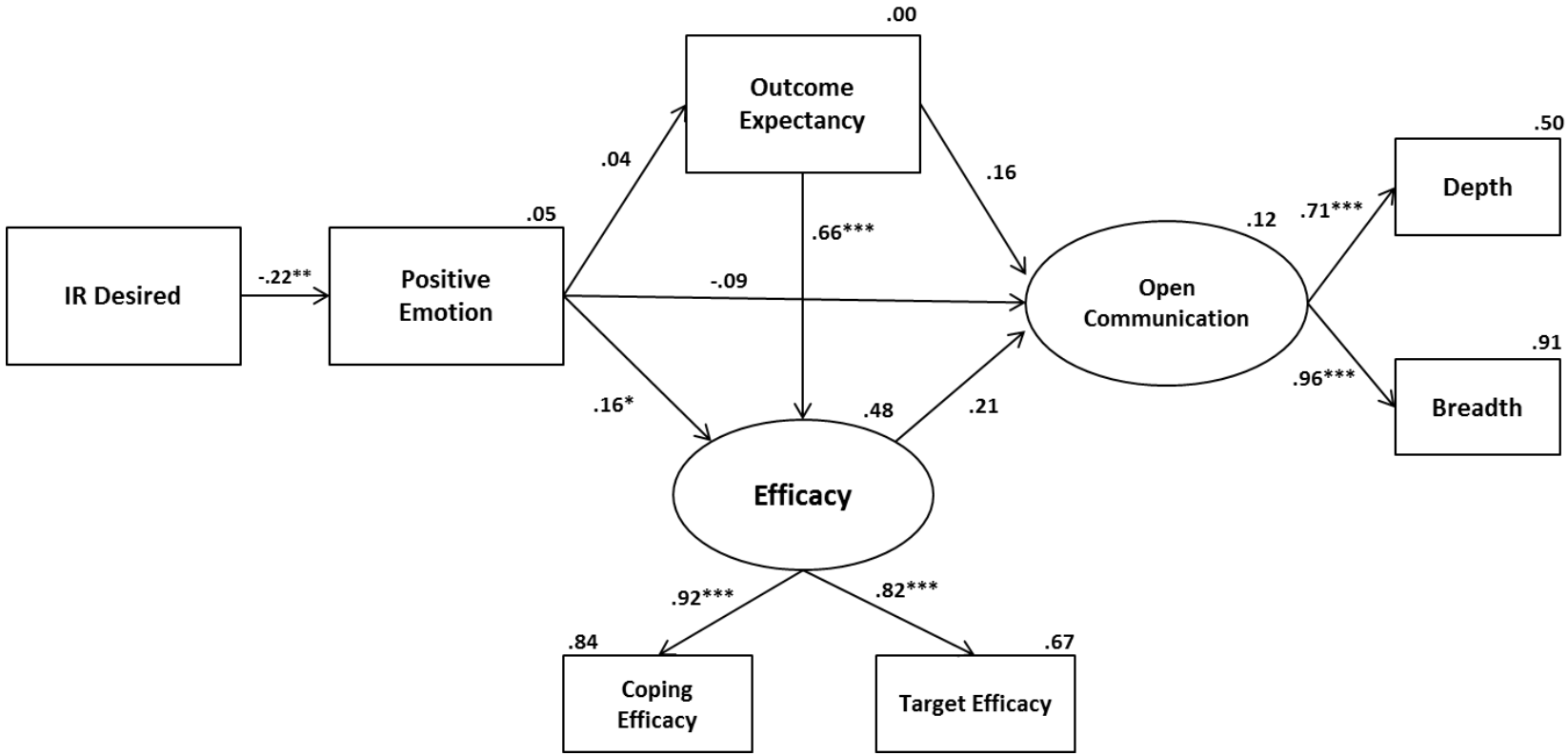


Figure 15: Hypothesized Model 8 for IR – Positive – Open Communication

emotion were not significant for either outcome (β = .04, p > .05). As a result, Hypothesis 1 was not supported.

To answer RQ 2, the hypothesized models with positive emotion were examined. IP desired knowledge discrepancy negatively predicted positive emotion (β = -.37, p < .001), suggesting that the more IP desired knowledge discrepancy leads to less positive emotional response. IR knowledge discrepancy also negatively predicted positive emotion (β = -.22, p < .01) suggesting that the greater the IR desired discrepancy, the lower the positive emotional response. Therefore, both types of knowledge discrepancy demonstrated an inverse relationship with positive emotion in that more discrepancy was associated with less positive emotion.

Hypothesis 2a predicted that the intensity of negative emotional response would be directly associated with depth and breadth of disclosure. Figure 6 demonstrates that H2 represents the path from emotion to open communication. Contrary to the predictions, negative emotion was negatively associated with open communication for all forms of knowledge discrepancy (β = -.34, p < .01) which indicates that the more negative emotional response reported as a result of the knowledge discrepancy, the less depth and breadth participants engaged in when they disclosed the diagnosis. Therefore, Hypothesis 2a was not supported because the direction of the association was different. Hypothesis 2b predicted that the intensity of positive emotional response would be inversely associated with depth and breadth of disclosure. The results indicated a negative

association as predicted but the paths were not significant (β = -.09, p > .05). Therefore Hypothesis 2b was not supported.

Hypothesis 2c predicted that the intensity of negative emotional response would be inversely associated with topic avoidance. Figure 7 demonstrates that H2 represents the path from emotion to topic avoidance. As seen in Table 6, path H2 was statistically significant for both forms of knowledge discrepancy (β = .35, p < .001) but in the opposite direction of what was expected, indicating the more negative emotional response to the knowledge discrepancy the more topic avoidance the IP engaged in. Thus, Hypothesis 2c was not supported. Hypothesis 2d predicted that the intensity of positive emotional response would be directly associated with topic avoidance. As seen in Table 6, path H2 was statistically significant (β = .29, p < .001), indicating the more participants reported experiencing positive emotional response to the knowledge discrepancy the more they engaged in topic avoidance. Thus Hypothesis 2d was supported.

Evaluation Phase

Hypothesis 3a predicted that the intensity of negative emotional response would be negatively associated with outcome assessments. Figures 6 and 7 demonstrate that H3 represents the path from emotion to outcome expectancy. As seen in Table 6, path H3 was statistically significant for all the negative emotion models (β = -.22, p < .01) indicating that the more participants reported a negative emotional response to the knowledge discrepancy, the less positive outcome expectancies were perceived. Thus,

Hypothesis 3a was supported. Hypothesis 3b predicted that the intensity of positive emotional response would be positively associated with outcome assessments. As seen in Table 6, the results indicated a positive association as predicted but the paths were not significant in any of the models (β = .04, p > .05). Therefore Hypothesis 3b was not supported.

Hypothesis 4a predicted that the intensity of negative emotional response would be negatively associated with efficacy assessments. Figures 6 and 7 demonstrate that H4 represents the path from emotion to efficacy assessments. As seen in Table 6, path H4 was statistically significant for all the negative emotion models (β = -.27, p < .001) indicating that the more negative emotional response reported as a result of the knowledge discrepancy, the less efficacy they felt about the disclosure. Thus, Hypothesis 4a was supported. Hypothesis 4b predicted that the intensity of positive emotional response would be positively associated with efficacy judgments. As seen in Table 6, path H4 was statistically significant for all the positive emotion models (Topic Avoidance: β = .17, p < .05; Open Communication: β = .16, p < .05) indicating that the more positive emotional response to the knowledge discrepancy reported, the greater efficacy patients felt about their ability and the target's ability to cope with the disclosure. Thus, Hypothesis 4b was supported.

Hypothesis 5 predicted that outcome assessments would be positively associated with efficacy assessments. Figures 6 and 7 demonstrate that H5 represents the path from outcome expectancy to efficacy assessments. As seen in Table 6, path H5 was

statistically significant for all the models, indicating that the more positive outcome expectancy, the greater efficacy felt about their and the target's ability to cope with the disclosure. Thus, Hypothesis 5 was supported.

Decision Phase

Hypothesis 6a predicted that outcome assessments would be positively associated with depth and breadth. Figure 6 demonstrates that H6 represents the path from outcome assessments to open communication. Results indicated that although the relationship was in the hypothesized direction, the paths were not statistically significant for any of the models (Table 6). Therefore, Hypothesis 6a was not supported. Hypothesis 6b predicted that outcome assessments would be negatively associated with topic avoidance. Figure 7 demonstrates that H6 represents the path from outcome assessments to topic avoidance. As seen in Table 6, path H6 was only statistically significant for the negative emotion models (β = -.28, p < .05) indicating that the more positive expectancies about the outcome of a disclosure that participants reported, the less they engaged in topic avoidance. However, when participants reported positive emotional response to the knowledge discrepancy, the relationship was not significant. Thus hypothesis 6b was only partially supported. Hypothesis 7a predicted that efficacy assessments would be positively associated with depth and breadth. Figure 6 demonstrates that H7 represents the path from efficacy assessments to open communication. The results indicated a positive association as predicted for all the models, but none of the paths were significant (Table 6).

Table 7: Summary of Model-fit Statistics for All Hypothesized and Final Structural Models

	Hypothesized Models						***Final Models***					
	χ^2	***Df***	***p***	**CFI**	**SRMR**	**RMSEA**	χ^2	***Df***	***p***	**CFI**	**SRMR**	**RMSEA**
IP Desired Discrepancy Models												
1. IP – Negative - Topic Avoidance	52.53	6	.00	.83	.11	.24	13.77	5	.02	.97	.06	.11
2. IP – Negative - Open Communication	63.75	10	.00	.85	.12	.20	19.88	9	.02	.97	.06	.09
3. IP – Positive - Topic Avoidance	51.22	6	.00	.83	.12	.24	6.11	5	.30	1.00	.03	.04
4. IP – Positive - Open Communication	71.95	10	.00	.83	.15	.21	7.15	8	.52	1.00	.04	.00
IR Desired Discrepancy Models												
5. IR – Negative - Topic Avoidance	32.18	6	.00	.89	.12	.18	2.54	4	.64	1.00	.02	.00
6. IR – Negative - Open Communication	25.56	10	.004	.95	.09	.10	7.48	9	.68	1.00	.03	.00
7. IR – Positive - Topic Avoidance	24.90	6	.00	.92	.11	.15	6.97	5	.22	.99	.04	.05
8. IR – Positive - Open Communication	23.70	10	.008	.95	.09	.10	5.77	9	.01	1.00	.02	.00

Therefore Hypothesis 7a was not supported. Hypothesis 7b predicted that efficacy assessments would be negatively associated with topic avoidance. Figure 7 demonstrates that H7 represents the path from efficacy assessments to topic avoidance. The results indicated a negative association for all models except the one including positive emotion and topic avoidance as the dependent variable; however, none of the paths were significant (Table 6). Therefore Hypothesis 7b was not supported.

IP's TMIM Model

Hypothesis 8 predicted the overall fit of the TMIM model to the data in the context of cancer diagnosis disclosures. Thus, the acceptability of the hypothesized models was examined. As seen in Table 7, the eight models showed mixed fit. It appears the only models with mediocre fit were models with IR desired knowledge discrepancy predicting open communication with both negative emotional response (χ^2 (N = 137; df = 10) = 22.74, $p < .05$, CFI = .96, SRMR = .08. RMSEA = .097) and positive emotional response (χ^2 (N = 137; df = 10) = 22.70, $p < .05$, CFI = .96, SRMR = .09, RMSEA = .09). Therefore, to answer Research Question 3, IR desired knowledge discrepancy was the only type of knowledge discrepancy that predicted the process for IPs. And Hypothesis 8 predicted that the TMIM model would be a good fit to the data, which was only found (as described above) for models with IR desired knowledge discrepancy predicting open communication through negative emotional response and positive emotional response. Thus, Hypothesis 8 was partially supported. This indicates that the TMIM process was in certain respects an appropriate framework to explain cancer patients', as initiating IPs,

Table 8: Summary of Hypotheses and Results

H1: The size of knowledge discrepancy is positively associated with the intensity of negative emotional response.	Not Supported
***H2a*:** Intensity of negative emotional response to knowledge discrepancy is positively associated with depth and breadth of disclosure.	Not Supported
***H2b*:** Intensity of positive emotional response to knowledge discrepancy is inversely associated with depth and breadth of disclosure.	Not Supported
***H2c*:** Intensity of negative emotional response to knowledge discrepancy is inversely associated with topic avoidance.	Not Supported
H2d: Intensity of positive emotional response to knowledge discrepancy is positively associated with topic avoidance.	Supported
***H3a*:** The intensity of negative emotional response is negatively associated with positive outcome assessments.	Supported
H3b: The intensity of positive emotional response is positively associated with positive outcome assessments.	Not Supported
***H4a*:** The intensity of negative emotional response is negatively associated with efficacy assessments.	Supported
H4b: The intensity of positive emotional response is positively associated with efficacy assessments.	Supported
***H5*:** Outcome assessments are positively associated with efficacy judgments such that more positive outcome assessment is associated with higher efficacy.	Supported
***H6a*:** Positive outcome assessment is positively associated with depth and breadth of disclosure.	Not Supported
***H6b*:** Positive outcome assessment is negatively associated with topic avoidance.	Partially Supported
***H7a*:** Efficacy assessments is positively associated with depth and breadth of disclosure.	Not Supported
***H7b*:** Efficacy assessments is negatively associated with topic avoidance.	Not Supported
***H8*:** The revised TMIM model will fit the data in the context of diagnosis disclosures when the IP, the cancer patient, is the initiator.	Partially Supported

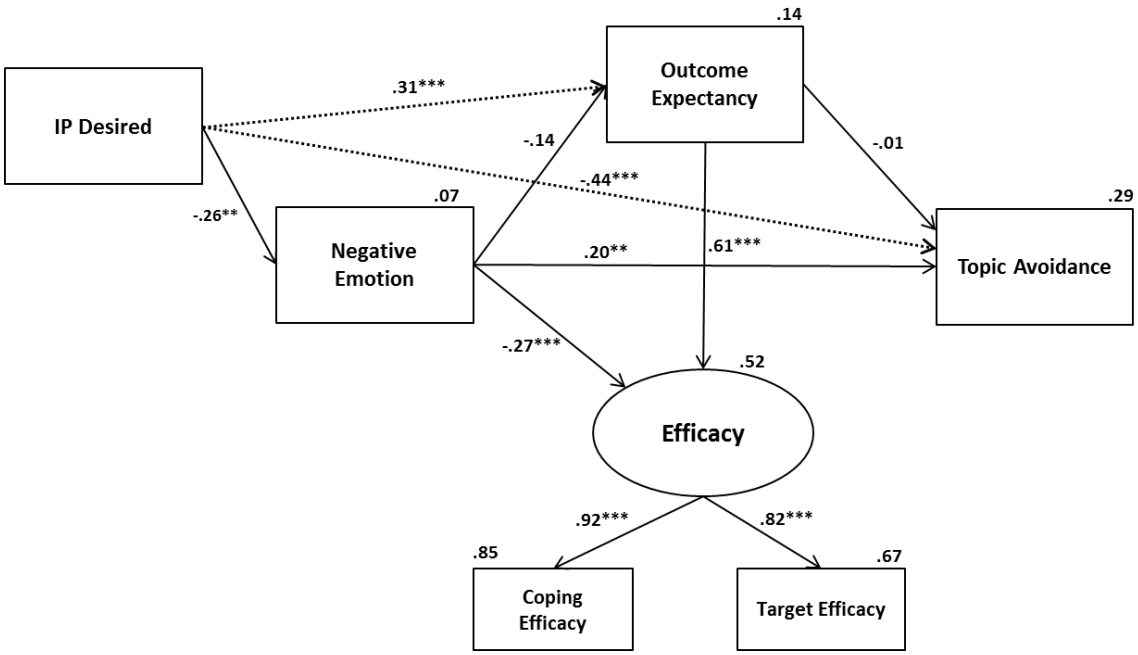
information management process when knowledge discrepancy was conceptualized in terms of what the IP perceives the IR's desired knowledge discrepancy (IR desired) to be.

Model Adjustments

IP desired discrepancy models. Given that most of the models demonstrated poor fit, insignificant paths were removed by way of model trimming (Kline, 2010), beginning with the least significant path. Model building was also used, which uses the modification indices to add paths that significantly improve model fit (Kline 2010). The models are numbered and named based on the constructs (see Table 7) and will be referenced as such. For Model number 1 (IP-negative-TA), the path from efficacy to topic avoidance (H7) was non-significant (β = .22, p = .09) so it was deleted. The modification indices suggested adding a path from IP desired knowledge discrepancy to outcome expectancy and a path to topic avoidance. This makes sense theoretically because the amount of discrepancy between what the IP wants the IR to know and how much he or she actually knows could influence whether the IP perceives positive or negative outcomes from disclosing and how detailed that disclosure would be.

The resulting model demonstrated between adequate and poor model fit, χ^2 (N = 137; df = 5) = 13.77, p = .01, CFI = .97, SRMR = .06, and RMSEA = .11 (Figure 16). To assess relative model fit, the hypothesized model was compared to the revised model using the chi-square difference test: $\Delta\chi^2$ = 38.76, Δdf = 1, p < .001. This significant finding indicated that the revised model, with fewer degrees of freedom, demonstrated significantly better fit.

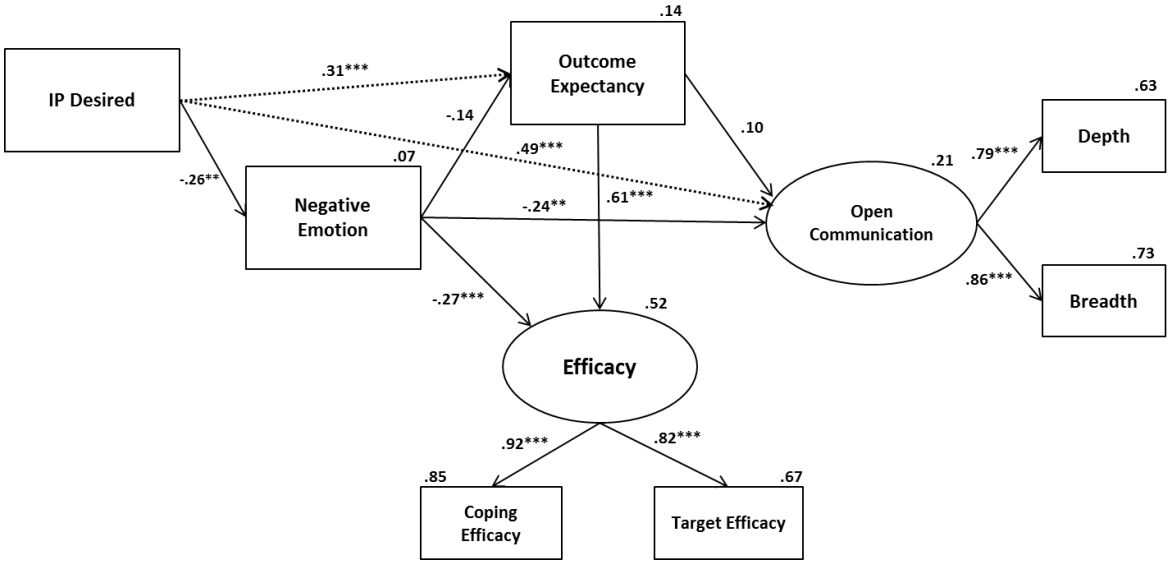
Figure 16: Final Model 1 for IP – Negative –Topic Avoidance



Note: Dotted lines represent added paths

For Model 2 (IP-negative-OC), the nonsignificant path from efficacy to open communication (H7; β = .02, p = .90) was deleted and paths from IP desired knowledge discrepancy to outcome expectancy and open communication were added. The resulting model demonstrated adequate model fit, χ^2 (N = 137; df = 9) = 19.88, p = .02, CFI = .97, SRMR = .06, and RMSEA = .09 (Figure 17), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 43.90$, $\Delta df = 1$, $p < .001$.

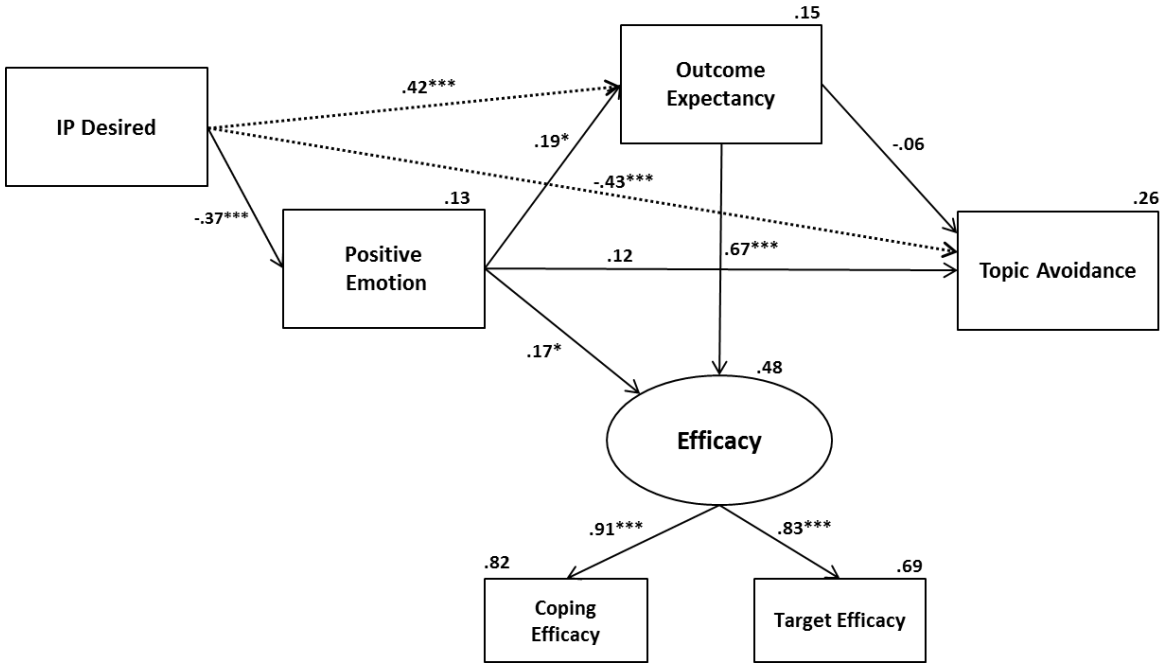
Figure 17: Final Model 2 for IP – Negative –Open Communication



Note: Dotted lines represent added paths

For Model 3 (IP-positive-TA), the nonsignificant path from efficacy to topic avoidance (H7; β = -.02, p = .85) was deleted and a path from IP desired knowledge discrepancy to outcome expectancy and topic avoidance were added. The resulting model demonstrated excellent model fit, χ^2 (N = 137; df = 5) = 6.11, p = .30, CFI = 1.00, SRMR = .03, and RMSEA = .04 (Figure 18), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 45.11$, $\Delta df = 1$, $p < .001$.

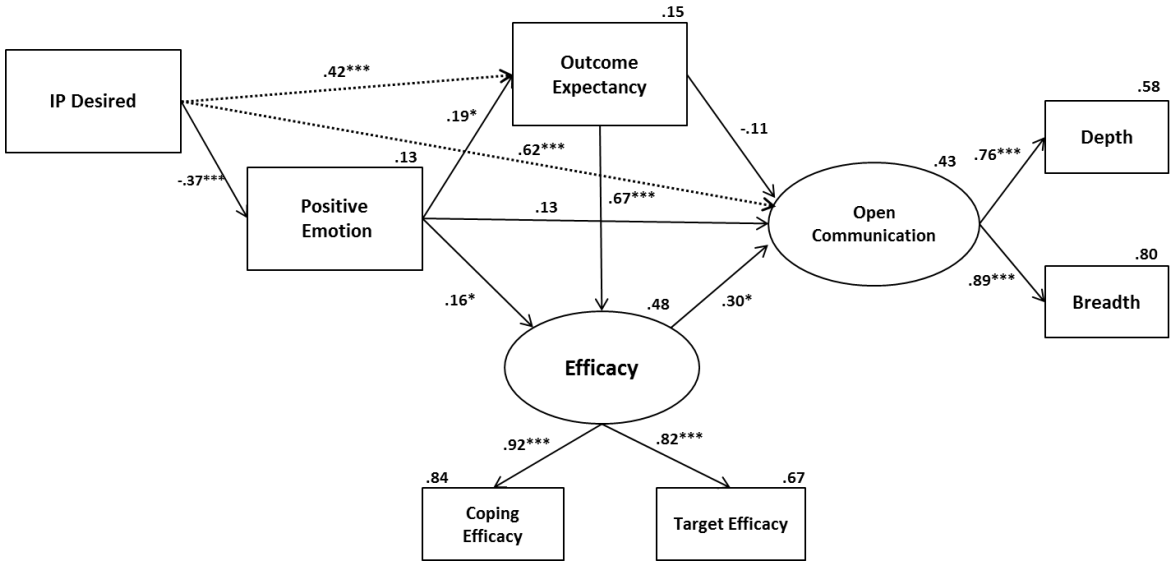
Figure 18: Final Model 3 for IP – Positive –Topic Avoidance



Note: Dotted lines represent added paths

For Model 4 (IP-positive-OC), the modification indices suggested adding a path from IP desired knowledge discrepancy to outcome expectancy and open communication. The resulting model demonstrated excellent model fit, χ^2 (N = 137; df = 9) = 7.15, p = .52, CFI = 1.00, SRMR = .04, and RMSEA = .00 (Figure 19), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 64.80$, $\Delta df = 2$, $p < .001$.

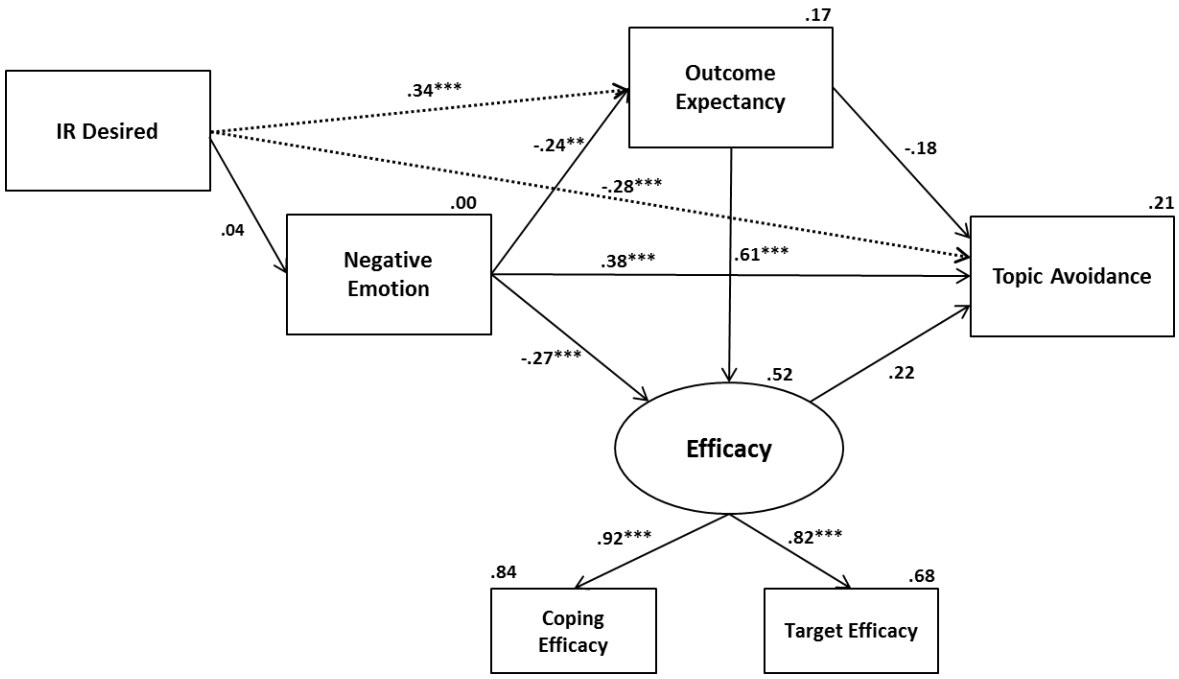
Figure 19: Final Model 4 for IP – Positive –Open Communication



Note: Dotted lines represent added paths

IR desired discrepancy models. For Model 5 (IR-negative-TA), the modification indices suggested adding a path from IR desired knowledge discrepancy to outcome expectancy and topic avoidance. The resulting model demonstrated excellent fit, χ^2 (N = 137; df = 4) = 2.54, p = .64, CFI = 1.00, SRMR = .02, and RMSEA = .00 (Figure 20), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 29.64$, $\Delta df = 2$, $p < .001$.

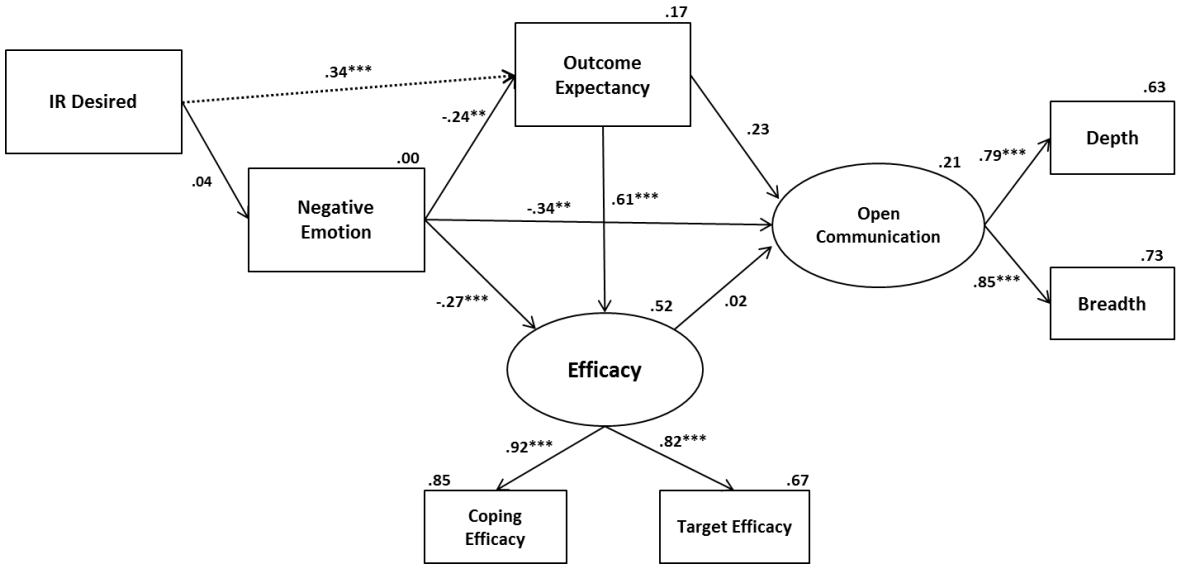
Figure 20: Final Model 5 for IR – Negative – Topic Avoidance



Note: Dotted lines represent added paths

For Model 6 (IR-negative-OC), the modification indices suggested adding a path from IR desired knowledge discrepancy to outcome expectancy. The resulting model demonstrated excellent fit, χ^2 (N = 137; df = 9) = 7.48, p = .68, CFI = 1.00, SRMR = .03, and RMSEA = .00 (Figure 21), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 18.07$, $\Delta df = 1$, $p < .001$.

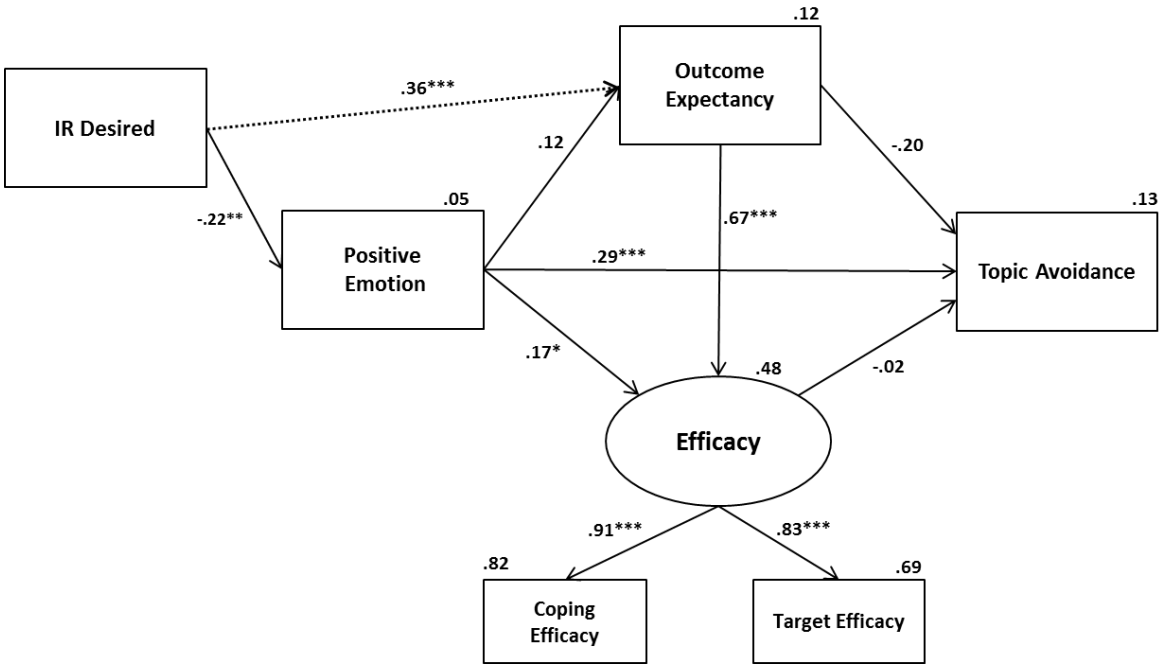
Figure 21: Final Model 6 for IR – Negative – Open Communication



Note: Dotted lines represent added paths

For Model 7 (IR-positive-TA), the modification indices suggested adding a path from IR desired knowledge discrepancy to outcome expectancy. The resulting model demonstrated excellent fit, χ^2 (N = 137; df = 5) = 6.97, p = .22, CFI = .99, SRMR = .04, and RMSEA = .05 (Figure 22), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 17.93$, $\Delta df = 1$, $p < .001$.

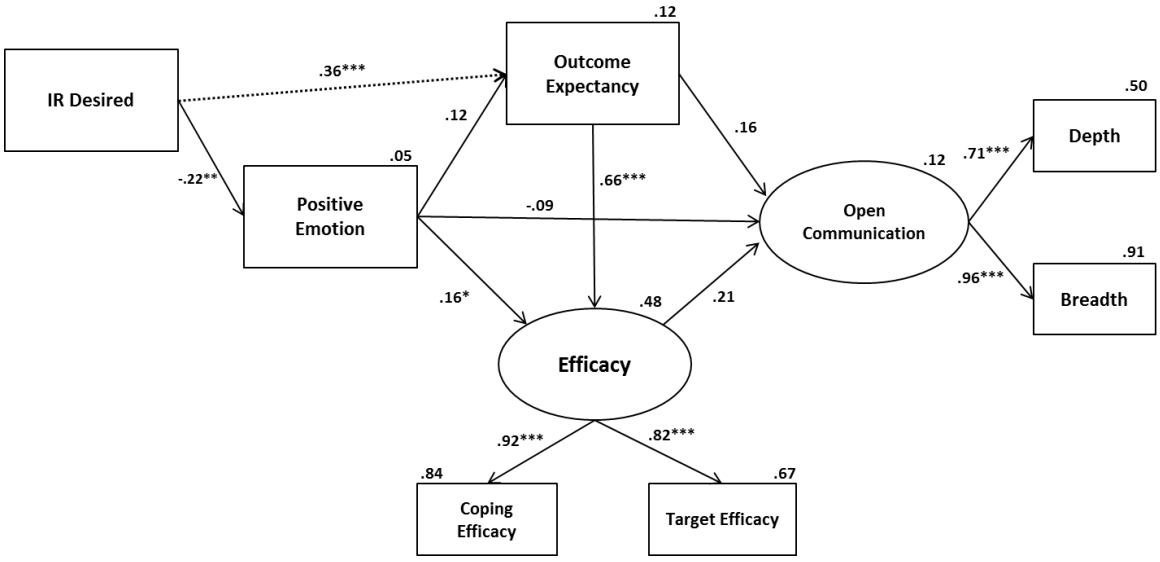
Figure 22: Final Model 7 for IR – Positive– Topic Avoidance



Note: Dotted lines represent added paths

For Model 8 (IR-positive-OC), a path from IR desired knowledge discrepancy to outcome expectancy was added. The new structural model achieved adequate fit, χ^2 (N = 137; df = 9) = 5.77, p = .01, CFI = 1.00, SRMR = .02, RMSEA = .00 (Figure 23), and significantly better fit than the hypothesized model, $\Delta\chi^2 = 17.93$, $\Delta df = 1$, $p < .001$.

Figure 23: Final Model 8 for IR – Positive– Open Communication



Note: Dotted lines represent added paths

Chapter 5: Discussion and Future Direction

Previous literature demonstrates that cancer patients are strategic and diligent in their disclosures to social network members (Chaudoir & Fisher, 2010; Derlega et al., 2004; Greene et al., 2012); however, until now that research had not tended to look specifically at non-spousal family members as the target of the disclosure. The present study had two goals: 1) investigate the applicability of TMIM to information provision, specifically in the context of cancer diagnosis disclosures, and 2) examine the process of cancer patients' decisions to disclose their diagnosis to family members.

Generally, the TMIM model as it is originally conceptualized has not been empirically examined as an explanation of the information management process within the context of diagnosis disclosures. As it was a new construct measured and tested for the first time in the present study, the underlying structure of knowledge discrepancy must first be discussed and then to be more specific in the conclusions, the general findings for each phase in the TMIM model will be reviewed followed by theoretical contributions and implications. Lastly, limitations and future directions will be addressed.

KNOWLEDGE DISCREPANCY

A primary aim of the present study was to understand the underlying structure of the knowledge discrepancy construct. This construct was originally identified and thought to entail a few possible conceptualizations: a) the discrepancy between the IP's knowledge of the diagnosis and the IR's (state knowledge discrepancy), b) the

discrepancy between the current state of knowledge for the IR (being zero) and what the IP perceives the IR's desired state of knowledge to be (IR desired discrepancy), or c) the difference between the IR's current state of knowledge and what the IP desires their knowledge to be (IP desired discrepancy). It was found that two reliable dimensions, IP desired knowledge discrepancy and IR desired knowledge discrepancy, emerged. The state knowledge discrepancy consisted of only two items and after a second examination of the items, they were worded so similarly to the IP desired knowledge discrepancy items that it was reasonable to collapse the two dimensions (IP and state knowledge discrepancy). The items all focused on whether or not the patient perceived the imbalance of knowledge between the family member and themselves to be okay, right, or desirable. Therefore, the conceptualization of knowledge discrepancy as originally posited by Nelson and Donovan (2014) needed to be revised for the present investigation. Additional research will be needed to develop more useful items that can help to establish the construct validity of state knowledge discrepancy.

Based on the way that the items were worded in the current study, a higher score on IP desired knowledge discrepancy reflects an uncomfortable or undesirable feeling toward the imbalance of knowledge – the IP is not okay or doesn't think it is right to keep the information from the IR. Nelson and Donovan (2014) originally thought knowledge discrepancy was conceptually and theoretically different from the motivating factor for information seekers in the TMIM model, uncertainty discrepancy. However, given the focus on preferences about the knowledge between the IP and IR, this construct could

still be considered uncertainty discrepancy. It is the amount of uncertainty the IR would desire (IR desired) or the amount the IP desired for the IR (IP desired). For example, the items for IP desired knowledge discrepancy were phrased in such a way that asked if the imbalance of knowledge was desirable, right or 'okay with me.' Therefore, higher scores on the IP desired dimension represented more discomfort with the family member not being aware of the diagnosis. The items for IR desired knowledge discrepancy asked how much they think the family member would want, wish or think they should know about the diagnosis, so that higher scores on the IR desired dimension represent a stronger feeling of obligation or the stronger desire of the IR to have no uncertainty, as perceived by the IP.

According to Brashers (2001), whose definition of uncertainty was adopted by Afifi and Weiner in the creation of TMIM, uncertainty exists "when information is unavailable or inconsistent" (p. 478). Therefore, it is possible that individuals assess others' uncertainty based on the inconsistent amount of knowledge accessible to them. For example, Brashers, Neidig, and Goldsmith (2004) found evidence of this idea in their study on HIV patients contemplating disclosure to others. The scholars found that HIV patients chose not to disclose their status in order to spare the family member from the uncertainty he or she would experience. Furthermore, borrowing from Afifi and Weiner's (2004) rationale, uncertainty discrepancy is conceptually a tolerance level for uncertainty (Kellerman & Reynolds, 1990). In the context of information seeking, this reflects a comfort level regarding how much information the individual possesses versus how much

he or she wants to know. As an IP, possessing information that others would likely want to know, this uncertainty discrepancy can be conceptualized as a comfort level regarding how comfortable the IP is with the target's potential uncertainty (IP desired knowledge discrepancy) or the comfort level others would feel (IR desired) *if they knew* there was information to possess.

Gudykunst and colleagues suggested that individuals have certain maximum and minimum thresholds they are comfortable with when dealing with uncertainty, and as soon as the threshold is challenged, they seek to manage it (Gudykunst, 1995; Gudykunst & Nishida, 2001). Research also demonstrates that individuals engage in more perspective-taking when the other person is more familiar to them, especially when the individual has an idea of how much knowledge the other person has (Krauss & Fussell, 1990; Moreland & Myaskovsky, 2000). Whether or not the individual is accurate in their perspective taking is not necessarily relevant because the individual's assessment of the target's potential uncertainty is arguably the motivating factor for information management, not the comparison of their perception to reality. Therefore, combining perspective-taking and the extensive uncertainty literature, it can be argued that individuals may have set thresholds for the amount of uncertainty they are comfortable with for others, especially close others such as family members. Additionally, Communication Privacy Management Theory (CPM; Petronio, 2002) explains that we establish boundaries surrounding personal information and managing the uncertainty of others is cited as a struggle in relationships, especially for those facing a serious illness

(Brashers, 2001; Brown-Smith, 1998; Mason et al., 1995; Redlinger & Johnston, 1980). For example, Karpel (1980) has delineated the awareness context as a way to explain the context of family secrets, designating the individuals involved as secret keeper and *unawares.* This conceptualization explicates the idea that individuals, based on the present study, assess the uncertainty of unawares if they were to become aware of the secret through disclosure. Therefore, applying a perspective-taking lens, an individual could assess the level of uncertainty a target *would* have if he/she were aware of the knowledge or information in need of disclosure.

INFORMATION PROVIDERS AND THE TMIM MODEL

Based on the findings in the present study, there appear to be two motivating factors to the information management process in the context of information provision. Each will be addressed in relation to the TMIM model for IPs in order to understand if the TMIM is an appropriate framework to examine information provision. The findings for each phase of the TMIM model are reviewed.

Interpretation Phase

In the present study, the interpretation phase included IPs' assessment of how comfortable they were with the family member not knowing about their cancer diagnosis (IP desired knowledge discrepancy) and how much uncertainty the family member would wish or want to have (IR desired knowledge discrepancy). This assessment was theorized as evoking an emotional response. Contrary to the hypothesis (H1), it was found that

greater IP desired knowledge discrepancy was associated with less emotional response, both positive and negative. Additionally, for IR desired knowledge discrepancy, there was not a significant relationship with negative emotion. Making a perception about the target's potential or hypothetical uncertainty and actually creating or making them aware of this uncertainty are two very different things. In the present study, the more uncomfortable or undesirable it is for the IP to have the IR in the dark, the less emotion.

Cognitive appraisal theory (Lazarus, 1991; Lazarus & Folkman, 1984) explains that individuals experience a primary appraisal in which the individual evaluates if the situation is important or has any risks or benefits, followed by a secondary appraisal in which the person evaluates if anything can be done about the situation. Therefore, perceiving the knowledge discrepancy as 'not right' or 'not okay' doesn't necessarily mean the IP is upset or angry about it. The sense of obligation that comes with disclosing illness (Caughlin et al., 2009; Derlega et al., 2004; Donovan-Kicken et al., 2012; Simoni et al., 1995) could be seen as inevitable or unavoidable and therefore does not evoke a strong emotional response. For example, Yoo et al. (2009) found that cancer patients report a sense of obligation to console and manage the target's emotions when disclosing their diagnosis for the first time. Many of the participants also reported an obligation to suppress their emotions in this context. Therefore, when thinking about the imbalance of knowledge and the uncertainty that could be evoked in the IR if he or she were aware, the tendency to suppress emotions may occur even when retrospectively thinking about the decision process. Patients in the present study reported moderate levels of negative

emotions (Mean = 3.3) and therefore, the inverse relationship could also just be due to the reported low levels of negative emotions. Previous TMIM literature has demonstrated a similar trend with average reports of negative emotion at 2.7 or below on a 6 or 7 point scale (Afifi & Afifi, 2009; Fowler & Afifi, 2011; Afifi et al., 2006; Dillow & Labelle, 2014; Rafferty et al., 2014).

Another potential explanation could be that individuals may not experience much emotional response to the assessment of the IR's potential uncertainty because it is a matter of knowledge rather than appraisal. Lazarus and Smith (1988) make an important distinction between knowledge and appraisal in which knowledge is purely information about the way things are or work and appraisal involves making an evaluation of the significance or personal meaning of the knowledge in relation to the self. The scholars argue:

> Knowledge, per se, does not result in emotion. Another process, called appraisal, is required, which consists of an evaluation of whether and how what is happening is personally harmful or beneficial. Whereas knowledge, although necessary, is not by itself sufficient to produce an emotion, the appraisal of the personal significance of the encounter, based on this knowledge, is both necessary and sufficient. Each positive emotion reflects a particular kind of appraised benefit, and each negative emotion reflects a particular kind of appraised harm. Thus, although knowledge is a vital part of the cognitive stuff of which personal

> meaning is made, it does not constitute an appraisal until its implications for personal well-being have been drawn. (pp. 283-284)

Therefore, a survey of the knowledge itself between the IP and IR does not produce an emotional response, the appraisal of the meaning does. Although the wording of the knowledge discrepancy items assessed the participants' appraisal of the knowledge discrepancy, the directions for the emotion measure asked participants "*Rate the degree to which you experienced each emotion as a result of the uneven amount of knowledge between you and your family member*." Consequently the low scores on both negative and positive emotions could be as a result of responding about the discrepancy in knowledge rather than their appraisal of the situation. The present study tested the assessment of the imbalance of knowledge for the IP and IR desired constructs, but the prompt for emotional response was specific to the knowledge imbalance itself. Therefore, the irregular finding of more uneasiness or discomfort with the family member not knowing being associated with less negative emotion could simply be because the measures are assessing two different things: appraisal and knowledge.

Another goal of the present study was to understand the relationship between knowledge discrepancy and positive emotional response (RQ2). For IP desired knowledge discrepancy, the more that the patient reported being okay with the target's hypothetical or potential uncertainty (low IP desired knowledge discrepancy), the greater the patient's positive emotional response. For IR desired discrepancy, the more that the patient perceived that the family member would want to know about the diagnosis, the

lower the patient's positive emotional response. Theoretically these findings align with emotion and uncertainty literature in that lower uncertainty may lead individuals to feel content or satisfied with the situation (Ellsworth & Smith, 1988; Scherer, 1984; Smith & Ellsworth, 1985). This supports the notion that newly diagnosed cancer patients may feel happy that the family member does not know because the IP may not have all the information yet, the family member may not be deemed ready to hear the devastating news, or the IP is not ready to tell the family member yet.

Emotional response as a predictor of the information management outcomes demonstrated mixed findings. It was hypothesized that the intensity of negative emotional response to the knowledge discrepancy would be directly associated with depth and breadth of disclosure (H2a) and inversely associated with topic avoidance (H2c). The exact opposite was found. Specifically, a greater negative emotional response led to more topic avoidance and less open communication. These findings align with the extensive emotion literature demonstrating that happiness leads to openness and negative emotional states lead to avoidance or concealment (Afifi et al., 2005; Afifi, & Steuber, 2009; Afifi, & Steuber, 2010; Nabi, 2002). As Afifi and Weiner (2004) argued, "Individuals are motivated to manage the physiological reaction of anxiety [emotion], rather than the cognitive uncertainty-discrepancy state that precedes it" (p. 174). Therefore the management of negative emotional response to the perception of IR's potential uncertainty assessment (IP desired or IR desired) in the decision to disclose to family members may be different than it is for information seeking. Information seeking

involves obtaining information in order to manage the negative emotions, but information provision brings another person into the boundary of particular personal information and therefore the 'management' of emotion may not operate in the same way. As research has demonstrated, topic avoidance is strongly related to self-protection or relationship-protection (Afifi & Guerrero, 1998; Afifi & Guerrero, 2000; Guerrero & Afifi, 1995). Similarly, when making decisions about disclosure, individuals evaluate self-, other-, and relationship-reasons for not disclosing (Derlega et al., 2008; Greene et al., 2006). Therefore, if a patient experiences a negative emotional response to their assessment of the target's potential uncertainty, they may be making an other-focused assessment in trying to protect the target from the emotional turmoil that comes with a diagnosis disclosure but also a self-focused reason in order to avoid having to provide support and answers to the target.

For positive emotion, it was posited that the intensity of positive emotional response would be inversely associated with depth and breadth of disclosure (H2b) and directly associated with topic avoidance (H2d). Although this hypothesis was supported for topic avoidance, positive emotional response was not associated with open communication (breadth and depth) because neither of the models with positive emotion found a significant relationship, not even after the modifications. For positive emotional response, the IP desired knowledge discrepancy proved to have a more direct relationship with open communication and did not go through positive emotion, as demonstrated by the insignificant path from positive emotion to open communication. As addressed

earlier, the emotional response measure could have been flawed in the design of the instructions and thus led to lower reported emotion all together. With the direct relationship between IP desired and open communication, the relationship aligns with the predictions at the onset of this study – more discomfort, measured by higher IP desired, leads to more open communication. This aligns with previous literature explaining that individuals disclose when experiencing a negative emotional response because the perceived reward of the disclosure, such as receiving social support, is high (Checton & Greene, 2012; Omarzu, 2000).

The lack of relationship between positive emotion and open communication for most of the models could be explained in a number of ways, but arguably one of the most substantial arguments lies within a relational dialectic perspective (Baxter & Montgomery, 1998). Individuals have a desire to be open in relationships but also maintain a level of privacy and therefore positive emotion may not have been related to open communication because of this dialectical tension – wanting others to know but also wanting privacy. Research has demonstrated that cancer leads to inconsistent patterns of communication within the family (Dunkel-Schetter & Wortman, 1982) and that cancer patients engage in somewhat selective disclosure (Chaudoir & Fisher, 2010; Derlega et al., 2004; Greene et al., 2012). Therefore, the unexpected findings may be a result of the context and possibly moderated by the types of topics. There may be some aspects of the diagnosis the IP is comfortable with the family member having uncertainty about, leading to less open communication, and other topics the IP may want to share, leading to more

open communication. Therefore, more specific open communication regarding particular topics could have been measured instead of general breadth and depth of the diagnosis disclosure.

Secondly, as addressed earlier, the measurement of emotion asked participants to rate each emotion they felt 'as a result of the uneven amount of knowledge between you and your family member.' Participants could be responding with low to moderate levels of happiness (as the mean was 1.97) simply because they knew the forthcoming information about their cancer would upset the family member and provoke a number of changes and feelings and they recognize their family member as currently 'blissfully unaware.' This emotional response may not influence their communication with the family member though because the IP may feel a sense of obligation that comes with a life-threatening diagnosis, regardless of how he or she feels about it. Therefore, this unexpected finding could be due to the context of the study and the sense of obligation cancer patients often express when deciding to disclose to family members (Caughlin et al., 2009; Derlega et al., 2004; Donovan-Kicken et al., 2012; Simoni et al., 1995).

Evaluation Phase

The second phase of the TMIM model is the evaluation phase. In the TMIM model tested for IPs in the present study, this phase involves an assessment of the expected outcomes of a potential disclosure and the self and target efficacy to handle the disclosure. As hypothesized, the findings demonstrated that negative emotion was inversely related to outcome expectancy and efficacy assessments (H3a and H4a) and

positive emotion was positively related to efficacy (H4b). Specifically, the current study found that the more negative the emotional response to the IP and IR desired knowledge discrepancy, the less positive outcome expectancy and less efficacy patients reported, while the more positive emotional response lead to greater efficacy. This aligns with the extensive literature on assessments and the influence of emotional states. Individuals in a negative state may make pessimistic predictions about future interactions and feel less adequate to interact within them while those in a positive emotional state are more optimistic about interactions (Levy, 1984; Lowenstein & Lerner, 2003; Planalp & Fitness, 1999).

The findings regarding positive emotion and outcome expectancy were unexpected, revealing that positive emotion was not significantly related to outcome expectancy in the hypothesized models (H3b), thus not supporting the hypothesis. However, a closer examination of the models revealed a few patterns. In the final models with IP desired knowledge discrepancy as the motivator, the path was significant, demonstrating a positive relationship between positive emotion and outcome expectancy as expected. For the IR desired knowledge discrepancy models, hypothesized and even final, the path was nonsignificant along with the path from positive emotion to open communication (Model 8). This may lead to the conclusion that positive emotion may not be as important as negative emotion in the TMIM model for IPs as initiators when predicting open communication, especially when knowledge discrepancy is conceptualized as IR desired. Furthermore, the amount of variance explained in positive

emotion when IR desired was the motivator was 7% or less in the hypothesized and final models. IR desired is a measure of the IP's perception of the IR's desire for information if he or she were aware something was going on. The fact that positive emotion did not prove to be relevant in these models makes intuitive sense because the evaluation of the family member's desire to know the information would generally never lead one to feel positive. If the patient perceives the family member as strongly wanting to know, this may not evoke a positive emotion but more likely one of guilt because the IP is keeping a secret from the family member (Vangelisti, 1994). Alternatively, if the patient perceives the family member as strongly not wanting to know, this would likely evoke sadness or another negative emotion because in this situation the family member could be perceived as lacking empathy, care or concern. Therefore, testing positive emotion in the context of cancer diagnosis disclosures when IR desired knowledge discrepancy is the motivator may not be necessary or relevant.

One of the strongest findings in the present study that was present in all 8 hypothesized and final models was the strong and highly significant relationship between outcome expectancy and efficacy, supporting hypothesis H5. TMIM literature demonstrates the important influence of outcome expectancy on efficacy assessments in that the more positive outcome expected, the more efficacy one experiences. This relationship is due to the fact that individuals need to have a likely outcome in mind in order to assess their skills in following through to produce that outcome. Dillow and Labelle (2014) conducted the first study to empirically test the relationship among the

efficacy and outcome expectancy constructs for IPs within the TMIM framework and their study also found strong evidence of this relationship. Several behavioral theories, such as expected value theory, social learning theory and Bandura's self-efficacy theory (See Williams for a review), have established this strong relationship when predicting behavior. More specifically, illness disclosure literature has demonstrated that expected outcomes or responses from others influence their perception of self and target's ability to cope (Greene et al., 2012). Therefore, based on the present study, cancer patients (as an IP) assess the degree to which they expect the outcomes to be positive, which in turn influences their perception of their own and the target's ability to cope with the diagnosis disclosure.

Decision Phase

The last phase in the TMIM model is the decision phase, which involves the decision to disclose for IPs. In the present study, topic avoidance and open communication (depth and breadth) were used to capture dimensions of disclosure. One of the most evident patterns across all the models was that outcome expectancy and efficacy assessments were not significantly related to the qualities of disclosure (H6 and H7), topic avoidance and open communication[5]. This contradicts the TMIM framework because the theory postulates that outcome and efficacy assessments, encompassing the

[5] In Final Model 4, the path from efficacy to open communication was significant but this was the only case so the general findings are discussed in terms of patterns across the models.

evaluation phase of the TMIM, predict the information management strategies directly and serve as mediators between the interpretation and decision phases. This is a serious weakness in the present study because if both constructs within the evaluation phase do not significantly predict the outcomes in the IP's TMIM, it is difficult to conclude the applicability of the theory in the context of illness disclosures. However, there could be a few factors that are noteworthy in the present context to explain the unexpected findings.

Afifi and Weiner (2004) originally postulated that efficacy's role in the TMIM lessens in situations where the outcome expectancy is positive. The scholars argue that "In such cases, fears associated with enacting the communication strategies and concerns regarding coping abilities likely vanish, resulting in a diminished role for efficacy in the information management process" (Afifi & Weiner, 2006, p. 38). Participants in the present study reported on average moderately positive outcome expectancy (M = 4.72), evidenced by a mean slightly above the midpoint. Although outcomes of disclosing a cancer diagnosis would not be traditionally categorized as positive, the positive benefits to both patient and family member could influence the perspective of 'positive outcomes' in the context of cancer and thus influence the decision to be open or avoid particular topics. This is similar to the argument that cancer patients feel a sense of obligation to tell family members about their diagnosis (Caughlin et al., 2009; Derlega et al., 2004; Donovan-Kicken et al., 2012; Simoni et al., 1995) and this sense of obligation may diminish the influence of efficacy or outcome assessments on topic avoidance and open communication. For example, the patient may recognize the IR's unawareness and the

feeling of obligation to disclose the diagnosis supersedes any evaluation phase because the disclosure is deemed inevitable. However, given the strong presence of outcome expectancy and efficacy assessments in Nelson and Donovan's original qualitative study, this possibility is not quite convincing. TMIM postulates for both information seeking and information provision, that efficacy mediates the relationship between outcome expectancy and information management, implying that there is not a direct relationship between outcome expectancy and information management outcomes. Therefore, the fact that the relationship between outcome expectancy and qualities of disclosure (topic avoidance and open communication) were not significant in this study are not as unexpected or even far off from previous TMIM literature (Afifi & Afifi, 2009; Afifi & Weiner, 2006; Dillow & Labelle, 2014; Fowler & Afifi, 2011) to raise flags for the abandonment of TMIM in information provision. However, if efficacy assessments are believed to be a mediator between outcome expectancy and information management, a few considerations regarding the efficacy construct should be considered that may have influenced the lack of significant findings.

Efficacy has been a difficult construct in previous TMIM literature because it does not always form one latent factor. Studies usually find that coping is the factor that does not significantly contribute to the variance in the measurement model (Dillow & Labelle, 2014; Fowler & Afifi, 2011); however, the regression weights of coping efficacy ($\beta = .97$, $p < .001$) in the present study indicated that it was the strongest factor in the latent construct efficacy for the present data. This makes theoretical sense because the

evaluation of the cancer patient's ability to cope with the family member's response (i.e., questions, opinions, upset, etc.) has been strongly supported in previous literature (Greene et al., 2012; Maddux et al., 1982; Magsamen-Conrad et al., 2014; Shaffer et al., 2001). Interestingly, communication efficacy did not contribute to the latent factor in the present data, which is a finding not yet seen in the TMIM literature. Cancer is a life-threatening disease, which affects the whole family, and therefore a patient's perception of ability to communicate the diagnosis may not be an important factor for the TMIM in the context of disclosure. Research documents cancer patients' feelings of obligation to tell family members (Caughlin et al., 2009; Derlega et al., 2004; Donovan-Kicken et al., 2012; Simoni et al., 1995) and thus one's own ability to communicate may not be a relevant assessment in the evaluation phase because the disclosure is viewed as inevitable. In other words, this duty does not necessarily give way to evaluating one's own ability to communicate the information. It may be seen as a chore or an obligation and therefore how strong an individual feels about their ability may not be relevant. Thus in the context of cancer disclosures it may be that one's own communication efficacy is not an assessment cancer patients make when deciding to disclose to particular family members and it may only be a construct pertinent to information seeking.

IP's TMIM Model

A pivotal pattern in the present study was the recommendation of the path from IP and IR desired knowledge discrepancy to outcome expectancy in most of the final models. The path was theoretically intuitive because the comfort with the IR's potential

uncertainty or the assessment of what the IR would want to know in general could influence whether the IP perceives positive or negative outcomes from disclosing. In the first theoretical conceptualization of the TMIM model, Afifi and Weiner (2004) argued that anxiety only partially mediates the relationship between uncertainty and the other constructs in the model. The scholars stated, "Anxiety is argued to substantially reduce the size of path from uncertainty discrepancy to subsequent variables in the model, but not to eliminate it" (Afifi & Weiner, 2004, p. 174). Afifi and Weiner went further to say that this is a distinguishing factor of the TMIM from other communication theories. However, empirical tests of the theory do not include these paths at all (Afifi & Afifi, 2009; Afifi et al., 2006; Afifi & Weiner, 2006; Dillow & Labelle, 2014; Fowler & Afifi, 2011). Thus the present study demonstrates a need to examine this proposition again for information provision.

The strong and positive association between knowledge discrepancy and outcome expectancy suggest that the more uncomfortable the patient feels about the IR not knowing about the diagnosis (IP desired) the more positive the outcome expectancy. Similarly, the more the IP felt the IR would want to know (IR desired), the more positive outcome expectancy. According to Omarzu (2000), individuals calculate risk and benefits to disclosing personal information and this assessment influences the decision to disclose. Based on Nelson and Donovan's (2014) qualitative findings, patients calculate risks and benefits and many mentioned that the family member would be upset or 'ticked off' if the patient didn't tell them. Therefore, in the present study it is likely that the IP's discomfort

with the IR not knowing would lead to positive outcome expectancy because the IP would avoid the conflict of the target being upset. This also suggests that emotion wouldn't mediate this relationship because the IP's discomfort with the IR being in the dark or the fact that the IR would want to know directly effects the perception of the outcome. Part of this argument stems from the issue mentioned previously that the knowledge discrepancy items were emotionally laden, asking participants to appraise the situation of the IR not knowing about the diagnosis. Therefore, the direct relationship between the knowledge discrepancy and outcome expectancy improving fit of the model may be due to the fact that knowledge discrepancy items assessed the participants' appraisal of the knowledge discrepancy and therefore diminished the influence of emotional response in the model.

To further support this point, cognitive appraisal theory (Lazarus, 1991; Lazarus & Folkman, 1984) explains that individuals experience a primary appraisal in which the individual evaluates if the situation is important or has any risks or benefits, followed by a secondary appraisal in which the person evaluates if anything can be done about the situation. Perceiving the knowledge discrepancy as 'not right' or 'not okay' doesn't necessarily mean the IP is upset or angry about it. The knowledge discrepancy could be conceptualized as the primary appraisal and the IP could make a secondary appraisal that suggests there is something to be done, disclose, but the disclosure is due to obligation so there is not a negative emotion appraisal. As a result, the obligation to disclose inherently

would lead an IP to have a positive outcome assessment because the IP would perceive disclosure to be doing their 'duty.'

A second pattern was the recommendation of the path from IP and IR desired knowledge discrepancy and both outcomes, open communication and topic avoidance. As suggested earlier, the original propositions of the TMIM predicted that uncertainty discrepancy would have a direct and indirect effect on information management (Afifi & Weiner, 2004). In the context of topic avoidance and open communication, the present study found this direct relationship to be strong, indicating that patients may disclose more depth and breadth and not avoid topics when they perceive the IR as wanting to know or if the IP see's the IR's unawareness as undesirable. Based on the prior argument that the knowledge discrepancy measure could have unintentionally encompassed the emotional appraisal, since the items measured their comfort or desirability, the direct relationship between knowledge discrepancy and the disclosure qualities could be stronger than the indirect effect through emotional response.

THEORETICAL CONTRIBUTIONS AND IMPLICATIONS

The findings of the present study offer the following contributions to the literature: (a) a theoretically-based model for the IP portion of the TMIM process (b) evidence that IPs appraise the decision to disclose to family members through phases involving multiple factors — self and target's desired knowledge discrepancy, emotion, outcome expectancy, and efficacy; (c) evidence that IP and IR desired knowledge

discrepancy are significant predictors of the TMIM process; and (d) validation of an instrument for measuring dimensions of desired knowledge discrepancy.

Dillow and Labelle (2014) conducted the first study testing the IP side of the TMIM model in the context of STI testing among dating partners. The scholars found strong support for the evaluation and decision phases of the model, demonstrating that outcome expectancy and efficacy assessments predict indirect or direct information provision. The present study took this a step further to argue that the TMIM model for IPs is not just limited to the evaluation and decision phase when the IP serves as the initiator of information provision, but it also includes the interpretation phase. As one of the main contributions of the present study, the findings indicate that TMIM may be a potential framework to examine information provision when predicting topic avoidance and open communication, with some important revisions. Firstly, based on the findings from the final structural model analyses, the IP and IR desired knowledge discrepancy play a more significant direct role on the TMIM process and are not convincingly mediated by emotional response as originally posited in the TMIM for information seeking. If a cancer patient has more discomfort with the family member's unawareness, this discrepancy may influence the IP's outcome expectancies, the perception of the target's ability to cope or the IP's own ability to cope with the reaction, and the characteristics of disclosure. It is possible that the knowledge discrepancy measure encompassed the emotional appraisal, since the items measured their comfort or desirability, and thus the direct relationship is a more accurate depiction of the TMIM

process for cancer patients for the current study, but future iterations could revise the emotionally laden measure in order to separate out the independent constructs for the TMIM model.

A second important theoretical contribution and an alternate perspective on the unexpected findings between knowledge discrepancy and emotion is the recognition of the direct influence of IP and IR desired knowledge discrepancy on topic avoidance and open communication. The original framework for the TMIM included the argument that negative emotional response only partially mediates the relationship between uncertainty discrepancy and subsequent constructs in the model (Afifi & Weiner, 2004); however, this proposition was never tested in any of the empirical studies to follow (Afifi & Afifi, 2009; Afifi et al., 2006; Afifi & Weiner, 2006; Dillow & Labelle, 2014; Fowler & Afifi, 2011). Therefore, it may be that the present study demonstrated the need for this relationship to be present in the TMIM model for IPs.

Afifi and Weiner (2004) contended that "uncertainty discrepancy and resultant anxiety [emotional response] are those most central to initiating the process of information management in interpersonal exchanges" (p. 174). However, the present study demonstrated that the direct effects of uncertainty, as assessed by the IP, were more central to the information management process of disclosure than positive emotion, especially for predicting open communication. Therefore, positive emotion did not mediate the relationship between IP or IR desired knowledge discrepancy and open communication. IR desired and IP desired knowledge discrepancy also played a more

direct role in information management, with more IP desired knowledge discrepancy leading to less topic avoidance and more open communication. More specifically, the more uncomfortable the IP was about the IR's hypothetical uncertainty, the less topic avoidance and more open communication the IP reported. For the IR desired knowledge discrepancy models, the results need to be fleshed out more specifically. For negative emotional response to knowledge discrepancy predicting topic avoidance, the higher the IP's perception of the IR's desired knowledge discrepancy, the less topic avoidance. This makes sense because negative emotion leads to protection and positive emotion leads to openness (Afifi et al., 2005; Afifi, & Steuber, 2009; Afifi, & Steuber, 2010; Nabi, 2002).

Originally, it was posited that the negative emotion would occur as a result of evaluating the amount of knowledge discrepancy as not desirable. Therefore, less topic avoidance and more breadth and depth would give the target the perceived desired information. However, in the present study it was found that more negative emotion led to less open communication and more topic avoidance. An argument put forth regarding the role of emotion in the TMIM may be relevant to this point. Planalp and Rosenberg (2014) argued in the case of TMIM that it is hard to separate cognition from emotion in the context of information management – do I evaluate all the outcomes and efficacy and then feel an emotion, which leads to my decision, or does the emotion lead to the assessments and then the decision? This suggests that emotion may either be more accurately placed in the evaluation phase after the assessments. It may even be that emotion has two places in the TMIM, before the outcome and efficacy assessments and

after. Bar-Anan, Wilson and Gilbert (2009) introduced an uncertainty intensification hypothesis in which they demonstrated that the feelings of uncertainty intensified the emotional reaction to an already emotional situation. Therefore, as other TMIM literature supports, the emotion construct needs to be examined further to understand its significant role in the process of information management.

In thinking about how the TMIM process is different for information seekers, emotional response plays a key role because it occurs when individuals assess their own uncertainty and therefore seek to manage it. For the context of information provision, the IP does not become aware of a discrepant situation in which the IP experiences uncertainty themselves. As it is conceptualized in the present study, the motivating factor in the IP TMIM model is fundamentally the assessment of the target's potential or hypothetical uncertainty if the IR were to become aware that there is information to be known. Thus, the connection of uncertainty and negative emotion may not play a role in managing information from an IP's perspective. Research on communication about illness has yet to look at this idea of comfort with others' potential uncertainty so the present study is the first to observe a relationship between these two constructs. Therefore, its relationship with other constructs in the TMIM may need more investigation. Uncertainty literature strongly supports the notions of relationship, self and partner uncertainty (Knobloch & Solomon, 1999) which assesses the amount of uncertainty an individual perceives their partner to have about the state of one's relationship. However, the uncertainty assessment demonstrated in the present study can

be conceptualized as *hypothetical uncertainty* and this is the motivating factor of the TMIM for IPs. This is a novel idea because it demonstrates that individuals assess the level of uncertainty a target *would* have if he/she were aware of the knowledge or information in need of disclosure. Thus, it seems that individuals take it upon themselves to manage others' hypothetical uncertainty.

This also sheds light on imagined interaction literature in which individuals imagine how a communicative interaction would pan out and this informs them of how to approach the situation (Honeycutt, 2003). Imagined interactions can help individuals to problem-solve, plan messages, and help enhance communication effectiveness (Honeycutt, 2008). Similarly, scholars have argued "appraisals and corresponding emotions motivate behavioral and psychological actions directed toward managing uncertainty" (Brashers et al., 2004, p. 306). Assessing the target's level of hypothetical uncertainty after an imagined disclosure or the appraisals and emotional response outlined in the TMIM can help scholars better understand how that hypothetical or imagined uncertainty influences behavior or action choices, such as the decision to disclose an illness. Thus, this study contributes to the broader literature on uncertainty and understanding that uncertainty assessment can occur in many forms.

Furthermore, this study found evidence that perspective taking occurs for uncertainty as well. This is an important theoretical claim because it may shed light or offer explanations for a recent construct, communication work. Donovan-Kicken et al. (2012) conceptualized this as, "demanding and effortful; it is associated with a sense of

duty or obligation that is sometimes shared with significant others in a division of communicative labor; it involves preparing and planning for conversations; and it entails active message design" (p. 644). The present study demonstrated support for the concept of communication work, which involves effortful management of others' emotions, communication surrounding the cancer and tasks that come with being a cancer patient. This study demonstrated that patients assessed hypothetical uncertainty and this motivated the information management process, or more specifically it seems as though IPs take it upon themselves to reduce it. This is an added 'duty' that patients have to manage as part of being a cancer patient. A patient assesses that the family member would have uncertainty if he or she knew there was information to be aware of and if the IP may feel uncomfortable with that, the less topic avoidance the IP may engage in during the disclosure. This is a novel finding because it demonstrates that individuals assess hypothetical uncertainty when deciding to disclose to particular others. This also informs other areas of research, such as educational instruction, supportive communication, and information seeking because of the influence on behavior. The amount of hypothetical uncertainty an IP perceives may influence their communication, such as how to teach particular material, how much support to give someone in a crisis or how to respond to an information seeker.

A third contribution is the examination of disclosure to family members. There is a strong line of research to help us understand marital couples' communication and disclosure when cancer arises, but little is known about how patients communicate with

specific family members. Research has demonstrated that 30% of patients report not disclosing to family, friends, and co-workers (Henderson et al., 2002). From the present study, it can be concluded that cancer patients do in fact make strategic and important assessments when deciding to disclose to non-spousal family members and that process influences qualities of the disclosure, such as breadth, depth and topic avoidance.

LIMITATIONS AND FUTURE DIRECTIONS

A major limitation to the present study was in the design. The study asked participants to retrospectively remember their thoughts and feelings in the moment, which for some the moment of first finding out about the diagnosis could have been over 20 years ago. Therefore, asking participants to be retrospective may have affected some of the findings. For example, asking a breast cancer patient to recall the first time she told her daughter about her diagnosis that occurred 20 years ago, she may convolute her perception of the situation with later events or possibly her expectations and feelings towards the daughter's reaction. In an attempt to alleviate this limitation an anchor question was asked at the start of the questionnaire regarding the extent to which their family member's *actual* reaction differed from what they *expected*, which participants reported a relatively low difference (Sudman, Bradburn, & Schwarz, 1996), suggesting a relatively small difference between their expectations and actual response. However, this question may not have diminished this limitation completely.

Second, the study was cross-sectional, whereas the true conceptualization of TMIM is an iterative process consisting of phases. This design hindered the ability to

examine if the interpretation, evaluation and decision phase occurred in order or multiple times. Afifi & Weiner (2004) argue that the TMIM process could be cycled through multiple times if reappraisal is the chosen information management strategy. Similarly, stress and coping literature demonstrates that individuals conduct a primary and secondary appraisal (Lazarus & Folkman, 1984) of the situation and their emotions; thus, this study could not capture whether or not the disclosure happened after the first progression through the TMIM decision process or if the IP made these evaluations multiple times to come to the final conclusion to disclose. Therefore, the findings are limited in that the study did not truly capture the phasic process posited by the TMIM.

Future directions may find stronger and more supportive findings for the TMIM applied to information provision if it were longitudinal. This limitation was inherent in the present study because of the context, cancer diagnosis disclosures, in which surveying patients before disclosing to a family member about the diagnosis was too difficult to attain. Future application of the TMIM to information provision should either choose a context that is approachable longitudinally, such as disclosing a secret, or use experimental manipulation with a confederate confidant in order to capture the phasic process. This would not only allow the researcher to make predictive claims but also to better explicate the decision phase of the TMIM for IPs, which was a third limitation to the present study. Participants were asked to report on someone they disclosed their diagnosis to, therefore the present study could not examine the decision phase in its original conceptualization: disclose, avoid or reappraise (Afifi & Weiner, 2004).

Therefore, future research could ask patients to report on someone they disclosed to and someone they did not in order to observe differences.

A future direction could be to capture both outcomes of the disclosure decision process, participants could be either randomly assigned to report on a family member whom they did not disclose the diagnosis to or one they did disclose to. This validation idea comes from Greene et al.'s (2012) study on health disclosures in which she argues that previous research is unable to identify variables that influence the decision to disclose because of the solitary focus on disclosure. Including a situation in which they decided to tell a target and another situation in which they chose to conceal the information helps us better understand the decision phase of the TMIM model, which has often been simply measured as the extent to which individuals seek or avoid information. Asking participants to also report on someone they didn't disclose to allows a test of similarities across the two models.

Preparing and planning for conversations establishes the presence of active cognitive processing of the issue itself, cancer, and evaluating the information in order to prepare for the disclosure with close others. Recent studies have found interesting themes across cancer patients' accounts of disclosure, indicating an evaluation of the information the cancer patient currently possess and how this influences the decision to disclose to close others (Donovan-Kicken et al., 2012; Nelson & Donovan, 2014). Patients report not disclosing their diagnosis right away because they want to know more about the cancer, their prognosis, or treatment plans before involving others in their situation (Zhang &

Siminoff, 2005). This research demonstrates a significant role for information assessment in the information management process as individuals assess *information severity*, such as stigma and prognosis, and *information relevancy*, such as symptoms, relevance, and preparation (Greene, 2012). For example, in terms of symptoms and prognosis, patients in both previously mentioned studies expressed concern that they will soon experience symptoms of their diagnosis or side effects of treatment and therefore they feel an obligation to tell others about their cancer. Or patients express that they want to know what the exact prognosis is before scaring their family with the word 'cancer' (Chechton & Greene, 2012). Similarly, research has demonstrated that stigmatization surrounding types of cancer or just the notion of being a 'cancer patient' can be a barrier to disclosure (Chapple et al., 2004; Else-Quest & Jackson, 2014; Hamilton et al., 2010). The higher perceived stigma the less likely individuals want to disclose. If information assessment is a defining component of the information management process of disclosure, the next question is whether or not it belongs in the IP section of the TMIM. Disclosing and managing illness information requires active preparation and planning (Donovan-Kicken et al., 2012), which establishes the presence of active cognitive processing of the issue itself, cancer, and evaluating the information in order to prepare for the disclosure with close others. This research demonstrates a significant role for information assessment in the information management process as individuals assess stigma, prognosis, symptoms, preparation, and relevance.

A second question is whether the Disclosure Decision-Making Model (Greene, 2009) is a better fit because Greene and colleagues have demonstrated its applicability in the context of health disclosures (Chechton & Greene, 2012). However, Chechton and Greene (2012) model it with communication efficacy conceptualized as breadth, depth and frequency. This does not properly conceptualize efficacy – which is one's self-esteem or belief that he or she can do something. Breadth, depth and frequency capture components of the disclosure but not the participants' feelings towards their ability to do so. Then in the most recent test of the theory, the scholars separated efficacy from depth of disclosure again. The continual change suggests that this theory may not be as heuristic as we may think. TMIM is just as new as DDMM and this study does not pose the two theories against one another for a true test of the best fitting theory. However, it is plausible that TMIM will better explain the decision making process of disclosure because it was created as an interactional theory in which two individuals are taken into account. This study simply sought to expand the application to the information management process of disclosure and to demonstrate that the two positions within the theory, IP and IR as conceptualized in this study or information seeker and IP as conceptualized in TMIM literature thus far, are interchangeable based on who initiates the process. Therefore, future directions should consider posing the two theories against one another to better understand which is more parsimonious for the context of illness disclosures or even the broader context of information provision.

Another consideration for future research could be measuring discrete emotions beyond one simple question. Research on emotion and cognition demonstrates that each discreet emotion could interact with information provision in different ways (Bolls, 2010; Nabi, 2010). For example, fear may enact certain avoidance tendencies while guilt influences tendency to 'atone' for wrongdoing so individual may be more inclined to disclose or act in order to avoid any wrong doing. Therefore, using an aggregate score of negative emotion in the present study could have affected some of the findings. Furthermore, happiness may not be the most fitting positive affective state for the context of cancer diagnosis disclosures so future research should consider measuring alternative positive emotional responses. More specifically, disclosing a cancer diagnosis is inherently bad news, so a more appropriate positive emotion may be relief or satisfaction.

Studies show that the type of family relationship (i.e., parent, child, sibling, etc.) or relationship satisfaction can influence disclosure (Finkenauer, Engels, Branje, & Meeus, 2004; Vangelisti & Caughlin, 1997). Therefore it is important to examine the type of relationship in the model in order to understand how the relationship type influences whether or not disclosure influences the relationship satisfaction. Unfortunately, in the present study the question was asked '*what is your relationship with [family member's name]*?' with an open-ended answer. The responses are not clear as to whether the participants put in their role in the family or the target's. For example, participants responded 'mother,' but it is not clear whether the patient is the target's mother or the target is the patient's mother. Therefore, controlling for family relationship type was

limited to the categorization of immediate or extended family member. Future tests of TMIM in the context of familial relationships should include a categorical question or a more specific question regarding relationship type.

Aligning with the argument that the information management process is dyadic, Afifi & Weiner (2004) outlined the role of information provider in their original model. Immediately following the information seeker's information seeking strategy, the IP immediately makes assessments about the outcome of responding to the seeker and their own as well as the seeker's efficacy to communicate and manage the information. Afifi (2010) further argued that "the IP's response has immediate implications for the IS's information management decisions, either by affecting the seeker's level of uncertainty or his or her assessments of outcomes and efficacy levels" (p. 99). This tracks the interactive nature to information management between IS and IP. However, the present study put the IP as initiator of this process and the recipient as the responder. Therefore, it is relevant to explore if the dyadic process argument applies with the IP section of the TMIM as specified in the present study, implying that the IR immediately makes assessments about the outcome of responding to the disclosure and efficacy assessments.

Conclusion

The overarching goal of this study was to demonstrate utility of the TMIM for information provision as an information management process. Overall, the conclusion can be made that TMIM is a potential framework to understand disclosure, but possibly not for cancer diagnosis disclosures. This context is unique in the omnipresent factor of obligation and uncertainty that comes along with having cancer. Therefore, the unexpected findings and lack of support for some of the hypotheses may be due more to the context than the theory. The present study demonstrated evidence that relationships among the constructs in the TMIM are there, with excellent fit for some of the models, but the few unexpected findings make it difficult to conclude the application of TMIM in the context of diagnosis disclosures. In light of its limitations, this study provides initial evidence that the IP's TMIM may encompass more than just the evaluation and decision phase as a target of information seeking, but may progress through all three stages as initiator.

Appendices

APPENDIX A: ISSUE IMPORTANCE MEASURE

(Adapted from Afifi et al., 2006)

Think of one specific family member (who is not your spouse) you told your cancer diagnosis to. Put yourself back in the moment when you first found out about your cancer and thought about whether to tell this family member or not. Answer all the questions in this survey with this particular family member in mind and base your answers on the thoughts you remember having before telling him/her, when you first found out about your diagnosis.

Please read the statements below and choose the degree to which you agree with each statement.

1. It is important to me to discuss my cancer diagnosis with my family member.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree
2. It is important to me that my family member know about my cancer diagnosis.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree
3. It is important to me to tell my family about my cancer diagnosis.
   Strongly disagree 1 2 3 4 5 6 7 Strongly agree

APPENDIX B: KNOWLEDGE DISCREPANCY MEASURE

(Adapted from Afifi et al., 2006)

Think back to before you decided to disclose your diagnosis to one specific family member. Answer the questions based on the situation/circumstances prior to telling him/her.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Recipient desired discrepancy

1. At that time, I thought my family member knew less than they would like to know about my cancer diagnosis prior to disclosure.
2. At that time, I thought my family member would want to know about my cancer diagnosis.
3. At that time, I thought my family member would wish to know about my cancer diagnosis.
4. At that time, I thought my family member knew less than they should know about my cancer diagnosis.
5. At that time, I thought my family member would think they should know about my cancer diagnosis.
6. At that time, I felt obligated to tell my family member because they would think they should know about by cancer diagnosis.

State of knowledge discrepancy

7. At that time, I thought it would be okay if I knew about my cancer but I didn't let my family member know. [R]
8. At that time, I thought I should know more about my cancer diagnosis than my family member. [R]
9. At that time, I thought my family member not knowing about my cancer diagnosis was okay because I was the only one who needed to know.[R]
10. At that time, I thought it was the right thing to do if I knew about my cancer but I didn't let my family member know. [R]

IP desired discrepancy

11. At that time, I thought my diagnosis should remain private from this family member. [R]
12. At that time, my family member not being aware of my cancer diagnosis was desirable for me. [R]

13. At that time, I thought my diagnosis should be disclosed to my family member.
14. At that time, I wanted my diagnosis to remain private from this family member.[R]
15. At that time, I felt that my family member not being aware of my cancer diagnosis was the right thing. [R]

APPENDIX C: EMOTIONAL RESPONSE MEASURE

(Adapted from Fowler & Afifi, 2011)

Think about how much you knew and how much [family member's name] knew about your diagnosis when you first found out and before you told them. Think back to your thoughts prior to telling him/her. Rate the degree to which you experienced each emotion as a result of the uneven amount of knowledge between you and [family member's name]:

1 – Not at all 2 – A little 3 – Moderately 4 – Quite a bit 5 – A lot 6 - Extremely

1. Upset
2. Anxious
3. Distressed
4. Happy
5. Worried
6. Nervous
7. Guilty
8. Sad
9. Scared
10. Frustrated

APPENDIX D: OUTCOME EXPECTANCY MEASURE

(Adapted from Afifi et al., 2006; Fowler & Afifi, 2011; Afifi & Afifi, 2009)

Please read the statements below and choose the number that best reflects your beliefs.

–3	–2	–1	0	1	2	3
A lot more negatives than positives			About as many positives as negatives			A lot more positives than negatives

1. At that time, talking to my family about my cancer diagnosis would have positive outcomes.
2. At that time, there are a lot more benefits than there are problems associated with talking to my family about my cancer diagnosis.
3. At that time, talking to my family about my cancer diagnosis would be: [a very negative/positive experience]
4. At that time, the benefits associated with talking about my cancer diagnosis with my family are important.
5. At that time, the benefits associated with talking about my cancer diagnosis with my family are major.
6. At that time, talking to my family member directly about my diagnosis would produce _____
7. At that time, asking my family member what s/he thinks about my cancer diagnosis would produce ____.
8. At that time, approaching my family member to disclose my cancer diagnosis would produce _____.

APPENDIX E: EFFICACY ASSESSMENTS MEASURE

Communication Efficacy (Adapted from Afifi & Afifi, 2009; Fowler & Afifi; Derlega et al. 2004; **Afifi & Caughlin, 2006)**

Please read the statements below and choose the degree to which you agree with each statement.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. At that time, I didn't know how to start telling my family member about the diagnosis. [R]
2. At that time, I didn't know what to say if I tried to tell him/her about my cancer diagnosis. [R]
3. At that time, I didn't even know how to begin telling my family member about my cancer diagnosis. [R]
4. At that time, I couldn't think of any way to tell him/her about my cancer diagnosis. [R]
5. At that time, I didn't know how to even approach the issue with my family member. [R]

Coping efficacy (Adapted from Afifi et al., 2006)

Please read the statements below and choose the degree to which you agree with each statement.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. At that time, I knew that I would have no problem coping with my family member's reaction to me telling them about my cancer diagnosis, whatever they were.
2. At that time, I was certain that I would be able to handle whatever reaction my family member would have to my diagnosis disclosure, whether it be positive or negative.
3. At that time, I felt that I would be able to fully cope with my family member's reaction to my disclosure, whatever it was.
4. At that time, I felt confident that I could cope with whatever reaction my family member would have to me telling them about the diagnosis.

Target efficacy (Adapted from Afifi et al., 2006)

Please read the statements below and choose the degree to which you agree with each statement.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

1. At that time, I knew my family member would have no problem coping with me telling them about my cancer diagnosis.
2. At that time, I was certain that my family member would be able to handle whatever reaction they would have to my diagnosis disclosure, whether it be positive or negative.
3. At that time, I knew my family member would be able to fully cope with my disclosure, whatever the reaction would be.

APPENDIX F: QUALITIES OF DISCLOSURE MEASURE

(Adapted from Checton & Greene, 2012)

Please read the statements below and choose the degree to which you agree with each statement.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Depth

1. I had a heart-to-heart talk with my family member about my health condition.
2. I didn't want to worry my family member about little things related to my health condition.
3. My family member and I only talked about superficial issues related to my health condition.
4. I hold back from sharing intimate issues about my health condition with my family member.
5. I share my innermost fears about my health condition with my family member.

Breadth

6. I discussed a wide variety of issues related to my health condition
7. Communicating about my health condition was limited to specific topics
8. There are some issues related to my health condition that I do not talk about
9. I talk about a lot of topics related to my health condition
10. There are some areas related to my health condition that I avoid discussing
11. I am hesitant to share small health concerns

APPENDIX G: TOPIC AVOIDANCE MEASURE

(Adapted from Donovan-Kicken & Caughlin, 2010)

When individuals are dealing with cancer, there might be cancer-related topics that they avoid discussing. The following list contains topics that people might avoid talking to others about. Please consider how strongly you agree that YOU AVOID talking to [family member's name] about these topics.

I avoid talking to my partner about…

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Death
1. my cancer
2. plans for the future
3. questions I have about the future
4. death
5. the possibility that I might not recover
6. the chance that I might die
7. the possibility of my cancer coming back
8. the chance that my cancer might not be cured

Treatment
9. certain aspects of my treatment(s)
10. all aspects of my treatment(s)
11. reconstructive surgery
12. side effects from my treatment(s)
13. decisions about possible treatment regimens

Being a Burden
14. my ability to do household chores
15. how much I seem like myself
16. my physical discomfort
17. whether I am a burden on my family member
18. who will take care of me if I become extremely ill
19. work and other responsibilities I have
20. finances
21. insurance and medical expenses

Feelings

22. some or all of my concerns
23. some or all of my emotions
24. negative feelings that I have
25. things that I'm worried about
26. aspects of my cancer and treatment that make me nervous
27. upsetting information that I get from physicians
28. distressing information about cancer that I hear in the news
29. things I hear about cancer in the media
30. my anger
31. my family member's anger
32. some or all of their concerns
33. some or all of their emotions

Healthcare

34. interactions with my physicians
35. experiences with health care providers
36. doctor visits
37. hospital stays

References

Afifi, T. D., Olson, L. N., & Armstrong, C. (2005). The chilling effect and family secrets. *Human Communication Research, 31*, 564–598. doi:10.1111/j.1468-2958.2005.tb00883.x

Afifi, T. D., & Steuber, K. (2009). The Revelation Risk Model (RRM): Factors that predict the revelation of secrets and the strategies used to reveal them. *Communication Monographs, 76*, 144–176. doi:10.1080/03637750902828412

Afifi, T. D., & Steuber, K. (2010). The Cycle of Concealment model. *Journal of Social and Personal Relationships, 27*, 1019–1034. doi:10.1177/0265407510378301

Afifi, W. A. (2009). Theory of motivated information management. In S. Littlejohn & K. Foss (Eds.), *Encyclopedia of communication theory* (pp. 665–667). Thousand Oaks, CA: Sage.

Afifi, W. A. (2010). Uncertainty and information management in interpersonal contexts. In S. W. Smith & S. R. Wilson (Eds.), *New directions in interpersonal communication research* (pp. 94-114). Thousand Oaks, CA: Sage.

Afifi, W. A., & Afifi, T. D. (2009). Avoidance among adolescents in conversations about their parents' relationship: Applying the theory of motivated information management. *Journal of Social and Personal Relationships, 26*(4), 488-511. doi:10.1177/0265407509350869

Afifi, W. A., & Caughlin, J. P. (2006). A close look at revealing secrets and some consequences that follow. *Communication Research, 33*, 467-488. doi:10.1177/0093650206293250

Afifi, W. A., Dillow, M. R., & Morse, C. (2004). Examining predictors and consequences of information seeking in close relationships. *Personal Relationships, 11*, 429-449. doi:10.1111/j.1475-6811.2004.00091.x

Afifi, W. A., & Guerrero, L. K. (1998). Some things are better left unsaid II: Topic avoidance in friendships. *Communication Quarterly*, *46*(3), 231-249. doi:10.1080/01463379809370099

Afifi, W. A., & Guerrero, L. K. (2000). Motivations underlying topic avoidance in close relationships. In S. Petronio (Ed.), *Balancing the secrets of private disclosures* (pp. 165-179). Mahwah, NJ: Earlbaum.

Afifi, W. A., & Morgan, S. E., Stephenson, M. T., Morse, C., Harrison, T., Reichert, T., & Long, S. D. (2006). Examining the decision to talk with family about organ donation: Applying the theory of motivated information management. *Communication Monographs, 73*, 188-215. doi:10.1080/03637750600690700

Afifi, W. A., & Morse, C. (2009). Expanding the role of emotion in the theory of motivated information management. In T. A. Afifi & W. A. Afifi (Eds.), *Uncertainty, information management, and disclosure decisions: Theories and applications.* New York, NY: Routledge.

Afifi, W. A., & Weiner, J. L. (2004). Toward a theory of motivated information management. *Communication Theory, 14*, 167-190. doi:10.1111/j.1468-2885.2004.tb00310.x

Afifi, W. A., & Weiner, J. L. (2006). Seeking information about sexual health: Applying the theory of motivated information management. *Human Communication Research, 32*, 35-57. doi:10.1111/j.1468-2958.2006.00002.x

Aktan-Collan, K. I., Kaariainen, H. A., Kolttola, E. M., Pylvanainen, K., Jarvinen, H. J., Haukkala, A. H, & Mecklin, J. (2011). Sharing genetic risk with next generation: Mutation-positive parents' communication with their offspring in Lynch Syndrome. *Familial Cancer, 10*, 43-50. doi:10.1007/s10689-010-9386-x

Altman, I., & Taylor, D. A. (1973). *Social penetration: The development of interpersonal relationships*. Oxford, England: Holt, Rinehart & Winston.

Andersen, M. R., Smith, R., Meischke, H., Bowen, D., & Urban, N. (2003). Breast cancer worry and mammography use by women with and without a family history in a population-based sample. *Cancer Epidemiology Biomarkers & Prevention*, *12*(4), 314-320. doi:35400011938074.0040

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bar-Anan, Y., Wilson, T. D., & Gilbert, D. T. (2009). The feeling of uncertainty intensifies affective reactions. *Emotion*, *9*(1), 123. doi:10.1037/a0014607

Barak, A., & Gluck-Ofri, O. (2007). Degree and reciprocity of self-disclosure in online forums. *CyberPsychology & Behavior, 10*(3), 407-417. doi:10.1089/cpb.2006.9938.

Baxter, L. A. (1986). Gender differences in the hetero-sexual relationship rules embedded in break-up accounts. *Journal of Social and Personal Relationships, 3*, 289-306. doi:10.1177/0265407586033003

Baxter, L. A., & Montgomery, B. M. (1998). A guide to dialectical approaches to studying personal relationships. In B. M. Montgomery & L. A. Baxter (Eds.), *Dialectical approaches to studying personal relationships* (pp. 1-6). Mahwah, NJ: Erlbaum.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-46. doi:10.1037/0033-2909.107.2.238

Berger, C. R., & Calabrese, R. J. (1975). Some exploration in initial interaction and beyond: Toward a developmental theory of communication. *Human Communication Research, 1*, 99–112. doi:10.1111/j.1468-2958.1975.tb00258.x

Bolls, P. D. (2010). Understanding emotion from a superordinate dimensional perspective: A productive way forward for communication processes and effects studies. *Communication Monographs*, *77*(2), 146-152. doi:10.1080/03637751003790477

Bowen, N. K., & Guo, S. (2011). *Structural equation modeling*. New York: Oxford.

Bradbury, A. R., Patrick-Miller, L., Egleston, B. L., Olopade, O. L., Daly, M. B., Moore, C. W., Sands, C. B., Schmidheiser, H., Kondamudi, P. K., Feigon, M., Ibe, C., &

Daugherty, C. K. (2012). When parents disclose BRCA1/2 test results: Their communication and perceptions of offspring response. *Cancer, 118*(13), 3417-3425. doi:10.1002/cncr.26471

Brashers, D. E. (2001). Communication and uncertainty management. *Journal of Communication, 51*, 477–497. doi:10.1111/j.1460-2466.2001.tb02892.x

Brashers, D. E., Goldsmith, D. J., & Hseih, E. (2002). Information seeking and avoiding in health contexts. Human Communication Research, 28(2), 258-271. doi:10.1111/j.1468-2958.2002.tb00807.x

Brashers, D. E., Neidig, J. L., & Goldsmith, D. J. (2004). Social support and the management of uncertainty for people living with HIV or AIDS. *Health Communication, 16*(3), 305-331. doi:10.1207/S15327027HC1603_3

Brown-Smith, N. (1998). Family secrets. *Journal of Family Issues*, *19*(1), 20-42. doi:10.1177/019251398019001003

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Butow, P. N., Kazemi, J. N., Beeney, L. J., Griffin, A., Dunn, S. M., & Tattersall, M. H. N. (1996). When the diagnosis is cancer: Patient communication experiences and preferences. *Cancer, 77*(12), 2630-2637. doi:10.1002/(SICI)1097-0142(19960615)77:12<2630::AID-CNCR29>3.0.CO;2-S

Canary, D. J., Stafford, L., Hause, K. S., & Wallace, L. A. (1993). An inductive analysis of relational maintenance strategies: Comparisons among lovers, relatives, friends, and others. *Communication Research Reports, 10*, 3-14. doi:10.1080/08824099309359913

Caughlin, J. P., Afifi, W. A., Carpenter-Theune, K. E., & Miller, L. E. (2005). Reasons for, and consequences of, revealing personal secrets in close relationships: A longitudinal study. *Personal Relationships, 12*, 43–59. doi:10.1111/j.1350-4126.2005.00101.x

Caughlin, J. P., Bute, J. J., Donovan-Kicken, E., Kosenko, K. A., Ramey, M. E., & Brashers, D. E. (2009). Do message features influence reactions to HIV disclosures? A multiple-goals perspective. *Health Communication*, *24*, 270–283. doi:10.1080/10410230902806070

Caughlin, J. P., & Vangelisti, A. L. (2009). Why people conceal or reveal secrets: A multiple goals perspective. In T. Afifi & W.Afifi (Eds.), *Uncertainty, information management, and disclosure decisions: Theories and applications* (pp. 279-299). New York, NY: Routledge.

Chapple, A., Ziebland, S., & McPherson, A. (2004). Stigma, shame, and blame experienced by patients with lung cancer: qualitative study. *British Medical Journal, 328*, 1470. doi:10.1136/bmj.38111.639734.7C

Chaudoir, S. R., & Fisher, J. D. (2010). The disclosure processes model: Understanding disclosure decision making and post-disclosure outcomes among people living

with a concealable stigmatized identity. *Psychological Bulletin, 136*, 236-256. doi:10.1037/a0018193
Checton, M. G., & Greene, K. (2012). Beyond initial disclosures: The role of prognosis and symptom uncertainty in patterns of disclosure in relationships. *Health Communication, 27*, 145-157. doi:10.1080/10410236.2011.571755
Checton, M. G., & Greene, K. (2015). Elderly patients' heart-related conditions: Disclosing health information differs by target. *Psychology, Health & Medicine*, *20*, 594-604. doi: 10.1080/13548506.2014.986141
Cliff, N., & Hamburger, C. D. (1967). The study of sampling errors in factor analysis by means of artificial experiments. *Psychological Bulletin, 68*, 430-445. doi:10.1037/h0025178
Cliff, A. M. & MacDonagh, R. P. (2000). Psychosocial morbidity in prostate cancer: A comparison of patients and partners. *BJUI International, 86,* 834–839. doi:10.1046/j.1464-410x.2000.00914.x
Cousineau, N., McDowell, I., Hotz, S., & Hebert, P. (2003). Measuring chronic patients' feelings of being a burden to their caregivers: Development and preliminary validation of a scale. *Medical Care, 41*(1), 110-118. doi:10.1097/00005650-200301000-00013
Coyne, J., & Smith, D. (1991). Couples coping with a myocardial infarction. *Journal of Personality and Social Psychology, 61*, 404 – 412. doi:10.1037/0022-3514.61.3.404
Dailey, R. M. & Palomares, N. A. (2004). Strategic topic avoidance: An investigation of topic avoidance frequency, strategies used, and relational correlates. Communication Monographs, 71(4), 471–496. doi:10.1080/0363452042000307443
Derlega, V. J., Metts, S., Petronio, S., & Margulis, S. T. (1993). *Self-disclosure*. Newbury Park, CA: Sage.
Derlega, V. J., Winstead, B. A., Greene, K., Serovich, J., & Elwood, W. N. (2004). Reasons for HIV disclosure/nondisclosure in close relationships: Testing a model of HIV-disclosure decision making. *Journal of Social and Clinical Psychology, 23*, 747-767. doi:10.1521/jscp.23.6.747.54804
Derlega, V. J., Winstead, B. A., Mathews, A., & Braitman, A. L. (2008). Why does someone reveal highly personal information? Attributions for and against self-disclosure in close relationships. *Communication Research Reports*, *25*(2), 115-130. doi:10.1080/08824090802021756
Devins, G. M., & Lebel, S. (2008). Stigma in cancer patients whose behavior may have contributed to their disease. *Future Oncology, 4,* 717. doi:10.2217/14796694.4.5.717
Dillow, M. R., & Labelle, S. (2014). Discussions of sexual health testing: Applying the theory of motivated information management. *Personal Relationships, 21*, 676-691. doi:10.1111/pere.12057

Donovan-Kicken, E., & Caughlin, J. (2010). A multiple goals perspective on topic avoidance and relationship satisfaction in the context of breast cancer. *Communication Monographs, 77*, 231-256. doi:10.1080/03637751003758219

Donovan-Kicken, E., Tollison, A. C., & Goins, E. S. (2012). The nature of communication work during cancer: Advancing the theory of illness trajectories. *Health Communication*, *27*, 641-652. doi:10.1080/10410236.2011.629405

Dunkel-Schetter, C., & Wortman, C. B. (1982). The interpersonal dynamics of cancer: Problems in social relationships and their impact on the patient. *Interpersonal Issues in Health Care*, 69-100.

Ellsworth, P. C, & Smith, C. A. (1988). From appraisal to emotion: Differences among unpleasant feelings. *Motivation and Emotion, 12*, 271-302. doi:10.1007/BF00993115

Else-Quest, N. M., & Jackson, T. L. (2014). Cancer stigma. In P. W. Morgan (Ed.), *The stigma of disease and disability* (pp. 165-181). Washington, DC: American Psychological Association.

Ersig, A. L., Hadley, D. W., & Koehly, L. M. (2011). Understanding patterns of health communication in families at risk for hereditary nonpolyposis colorectal cancer: Examining the effect of conclusive versus indeterminate genetic test results. *Health Communication, 26*, 587-594. doi:10.1080/10410236.2011.558338

Figueiredo, M. I., Fries, E., & Ingram, K. M. (2004). The role of disclosure patterns and unsupportive social interactions in the well-being of breast cancer patients. *Psycho-Oncology, 13*, 96-105. doi:10.1002/pon.717

Finkenauer, C., Engels, R. C., Branje, S. J., & Meeus, W. (2004). Disclosure and relationship satisfaction in families. *Journal of Marriage and Family*, *66*(1), 195-209. doi:10.1111/j.0022-2445.2004.00013.x-i1

Forrest, K., Simpson, S. A., Wilson, B. J., Van Teijlingen, E. R., McKee, L., Haites, N., & Matthews, E. (2003). To tell or not to tell: Barriers and facilitators in family communication about genetic risk. *Clinical Genetics, 64*(4), 317-326. doi:10.1034/j.1399-0004.2003.00142.x

Fowler, C., & Afifi, W. A. (2011). Applying the theory of motivated information management to adult children's discussions of caregiving with aging parents. *Journal of Social and Personal Relationships, 28*, 507-535. doi:10.1177/0265407510384896

Frattaroli, J. (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin, 132*(6), 823-865. doi:10.1037/0033-2909.132.6.823

Gallagher, J., Parle, M., & Cairns, D. (2002). Appraisal and psychological distress six months after diagnosis of breast cancer. *British Journal of Health Psychology, 7*, 365–376. doi:10.1348/135910702760213733

Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *The Academy of Management Review, 17*, 183-211. doi:10.5465/AMR.1992.4279530

Goldsmith, D. J., & Albrecht, T. L. (2011). Social support, social networks, and health. In T. L. Thompson, R. Parrott, & J. F. Nussbaum (Eds.), *The routledge handbook of health communication* (2nd ed., pp. 335-348). New York: Routledge.

Goldsmith, D. J., Miller, L. E., & Caughlin, J. P. (2008). Openness and avoidance in couples communicating about cancer. In C. S. Beck (ed.), *Communication Yearbook 31* (pp. 62–115). New York: Erlbaum.

Gray, R. E., Fitch, M. I., Phillips, C., Labrecque, M., & Klotz, L. (1999). Presurgery experiences of prostate cancer patients and their spouses. *Cancer Practice, 7*, 130-135. doi:10.1046/j.1523-5394.1999.07308.x

Greene, K. (2009). An integrated model of health disclosure decision-making. In T. D. Afifi & W. A. Afifi (Eds.), *Uncertainty and information regulation in interpersonal contexts: Theories and applications* (pp. 226–253). New York, NY: Routledge.

Greene, K., Derlega, V. J., & Mathews, A. (2006). Self-disclosure in personal relationships. In A. Vangelisti & D. Perlman (Eds.), *Cambridge handbook of personal relationships* (pp. 409-427). Cambridge, England: Cambridge University Press.

Greene, K., Derlega, V. J, Yep, G. A., & Petronio, S. (2003). *Privacy and disclosure of HIV in interpersonal relationships: A sourcebook for researchers and practitioners*. Mahwah, NJ: Erlbaum.

Greene, K., Magsamen-Conrad, K., Venetis, M. K., Checton, M. G., Bagdasarov, Z., & Banerjee, S. C. (2012). Assessing health diagnosis disclosure decisions in relationships: Testing the disclosure decision-making model. *Health Communication, 27*, 356-368. doi:10.1080/10410236.2011.586988

Gudykunst, W. B. (1995). Anxiety/uncertainty management (AUM) theory: Current status. In R. Wiseman (Ed.), *Intercultural communication theory* (pp. 8-58). Thousand Oaks, CA: Sage.

Gudykunst, W. B., & Nishida, T. (2001). Anxiety, uncertainty, and perceived effectiveness of communication across relationships and cultures. International *Journal of Intercultural Relations, 25*(1), 55-71. doi:10.1016/S0147-1767(00)00042-0

Guerrero, L. K., & Afifi, W. A. (1995). Some things are better left unsaid: Topic avoidance in family relationships. *Communication Quarterly*, *43*(3), 276-296. doi:10.1080/01463379509369977

Hagedodorn, M., Puterman, E., Sanderman, R., Wiggers, T., Baas, P. C., van Haastert, M., & DeLongis, A. (2011). Is self-disclosure in couples coping with cancer associated with improvement in depressive symptoms? *Health Psychology, 30*(6), 753-762. doi:10.1037/a0024374

Hagedoorn, M., Sanderman, R., Bolks, H. N., Tuinstra, J., & Coyne, J. C. (2008). Distress in couples coping with cancer: A meta-analysis and critical review of role and gender effects. *Psychological Bulletin, 134*, 1–30. doi:10.1037/0033-2909.134.1.1

Hagerty, R. G., Butow, P. N., Ellis, P. M., Lobb, E. A., Pendlebury, S. C., Leighl, N., Mac Leod, C., & Tattersall, M. H. N. (2005a). Communicating with realism and hope: Incurable cancer patients' views on the disclosure of prognosis. *Journal of Clinical Oncology, 23*, 1278-1288. doi:10.1200/JCO.2005.11.138

Hagerty, R. G., Butow, P. N., Ellis, P. M., Dimitry, S., & Tattersall, M. H. N. (2005b). Communicating prognosis in cancer care: A systematic review of the literature. *Annals of Oncology, 16*(7), 1005-1053. doi:10.1093/annonc/mdi211

Hallowell, N., Foster, C., Eeles, R., Ardern-Jones, A., Murday, V., & Watson, M. (2003). Balancing autonomy and responsibility: The ethics of generating and disclosing genetic information. *Journal of Medical Ethics, 29*, 74-83. doi:10.1136/jme.29.2.74

Hamilton, J. B., Moore, C. E., Powe, B. D., Agarwal, M., & Martin, P. (2010). Perceptions of support among older African American cancer survivors. *Oncology Nursing Forum, 37*, 484-493. doi:10.1188/10.ONF.484-493

Hay, J., Shulk, E., Zapolska, J., Ostroff, J., Lischewski, J., Brady, M. S., & Berwick, M. (2009). Family communication patterns after melanoma diagnosis. *Journal of Family Communication, 9*, 209-232. doi:10.1080/15267430903182678

Henderson, B. N., Davison, K. P., Pennebaker, J. W., Gatchel, R. J., & Baum, A. (2002). Disease disclosure patterns among breast cancer patients. *Psychology and Health, 17*, 51-62. doi:10.1080/08870440290001520

Hilton, S., Emslie, C., Hunt, K., Chapple, A., & Ziebland, S. (2009). Disclosing a cancer diagnosis to friends and family: A gendered analysis of young men's and women's experiences. *Qualitative Health Research, 19*, 744-754. doi:10.1177/1049732309334737

Honeycutt, J. (2003). *Imagined interactions*. Cresskill, NJ: Hampton.

Honeycutt, J. (2008). Imagined interaction theory. In L. A. Baxter & D. O. Braithwaite (Eds.), *Engaging theories in interpersonal communication: Multiple perspectives* (pp. 77 – 88). Thousand Oaks, CA: Sage.

Hovick, S. R. (2014). Understanding family health information seeking: A test of the theory of motivated information management. *Journal of Health Communication, 19*, 6-23. doi:10.1080/10810730.2013.778369

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1-55. doi:10.1080/10705519909540118

Hunter, J. E., & Gerbing, D. W. (1982). Unidimensional measurement, 2nd order factor-analysis, and causal-models. *Research in organizational behavior*, *4*, 267-320.

Jorgensen, L., Garne, J. P., Søgaard, M., & Laursen, B. S. (2015). The experience of distress in relation to surgical treatment and care for breast cancer: An interview study. *European Journal of Oncology Nursing*. doi:10.1016/j.ejon.2015.03.009

Kaplan, D. (1990). Evaluating and modifying covariance structure models: A review and recommendation. *Multivariate Behavioral Research, 25*, 137-155.

Karpel, M. (1980). Family secrets. *Family Process, 19*, 295-306. doi:10.1111/j.1545-5300.1980.00295.x

Kavanagh, D. J., & Bower, G. H. (1985). Mood and self-efficacy: Impact of joy and sadness on perceived capabilities. *Cognitive Therapy and Research, 9,* 507-525. doi:10.1007/BF01173005

Keefe, F. J., Affleck, G., Lefebvre, J. C., Starr, K., Caldwell, D. S., & Tennen, H. (1997). Pain coping strategies and coping efficacy in rheumatoid arthritis: A daily process analysis. *Pain, 69*, 35-42. doi:10.1016/S0304-3959(96)03246-0

Kellerman, K., & Reynolds, R. (1990). When ignorance is bliss: The role of motivation to reduce uncertainty in uncertainty reduction theory. *Human Communication Research, 17*, 5-75. doi:10.1111/j.1468-2958.1990.tb00226.x

Kelly, A. E. (2002). *The psychology of secrets.* New York, NY: Kluwer Academic/Plenum.

Kenny, D. A. (2012). *Multiple latent variable models: Confirmatory factor analysis.* Retrieved from http://www.davidakenny.net/cm/mfactor.htm

Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127*, 472–503. doi:10.1037/0033-2909.127.4.472

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York: The Guilford Press.

Knobloch, L. K., & Solomon, D. H. (1999). Measuring the sources and content of relational uncertainty. *Communication Studies*, *50*(4), 261-278. doi:10.1080/10510979909388499

Krauss, R. M., & Fussell, S. R. (1990). Mutual knowledge and communication effectiveness. In J. Galagher, R. E. Kraut, & C. Egido (Eds.), *Intellectual teamwork: Social and technological foundations of cooperative work* (pp. 111–145). Hillsdale, NJ: Erlbaum

Langer, S. L., Brown, J. D., & Syrjala, K. L. (2009). Intrapersonal and interpersonal consequences of protective buffering among cancer patients and caregivers. *Cancer, 115,* 4311-4325. doi:10.1002/cncr.24586

Lazarus, R. S. (1991). Cognition and motivation in emotion. *American Psychologist, 46*, 352–367. doi:10.1037/0003-066X.46.4.352

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer

Lazarus, R. S., & Smith, C. A. (1988). Knowledge and appraisal in the cognition-emotion relationship. *Cognition & Emotion*, *2*(4), 281-300. doi:10.1080/02699938808412701

Lefebvre, L. C., Keefe, F. J., Affleck, G., Raezer, L. B., Starr, K., Caldwell, D. S., & Tennen, H. (1999). The relationship of arthritis self-efficacy to daily pain, daily mood, and daily pain coping in rheumatoid arthritis patients. *Pain, 80*, 425-435. doi:10.1016/S0304-3959(98)00242-5

Lepore, S. J. (2001). A social–cognitive processing model of emotional adjustment to cancer. In A. Baum & B. Andersen (Eds.), *Psychosocial interventions for cancer* (pp. 99–118). Washington, DC: American Psychological Association.

Lepore, S. J., & Revenson, T. A. (2007). Social constraints on disclosure and adjustment to cancer. *Social and Personality Psychology Compass, 1*, 313–333. doi:10.1111/j.1751-9004.2007.00013.x

Lester, P., Chesney, M., Cooke, M., Whalley, P., Perez, B., Petru, A., Dorenbaum, A., & Wara, D. (2002). Diagnostic disclosure to HIV infected children: How parents decide when and what to tell. *Clinical Child Psychology and Psychiatry, 7*, 1359–1045. doi:10.1177/1359104502007001007

Levy, R. L. (1984). The emotions in comparative perspective. In K. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 397 – 412). Hillsdale, NJ: Erlbaum.

Lowenstein, G., & Lerner, J. (2003). The role of emotion in decision making. In R. J. Davidson, H. H. Goldsmith, & K. R. Scherer (Eds), *Handbook of affective science.* Oxford: Oxford University Press.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1* (2), 130-49. doi:10.1037/1082-989X.1.2.130

Maddux, J. E., Sherer, M., & Rogers, R. W. (1982). *Cognitive Therapy and Research, 6*, 207-211. doi:10.1007/BF01183893

Magsamen-Conrad, K., Checton, M. G., Venetis, M. K., & Greene, K. (2014). Communication efficacy and couples' cancer management: Applying a dyadic appraisal model. *Communication Monographs.* doi:10.1080/03637751.2014.971415

Manne, S., & Badr, H. (2008). Intimacy and relational processes in couples' psychosocial adaptation to cancer. *Cancer, 112*, 2541-2555. doi:10.1002/cncr.23450

Manne, D., Badr, H., Zaider, T., Nelson, C., & Kissane, D. (2010). Cancer-related communication, relationship intimacy, and psychological distress among couples coping with localized prostate cancer. *Journal of Cancer Survivorship, 4*, 74-85. doi:10.1007/s11764-009-0109-y

Manne, S. L., Norton, T. R., Ostroff, J. S., Winkel, G., Fox, K., & Grana, G. (2007). Protective buffering and psychological distress among couples coping with breast cancer: The moderating role of relationship satisfaction. *Journal of Family Psychology, 21*, 380-388. doi: 10.1037/0893-3200.21.3.380

Manne, S., Ostroff, J., Rini, C., Fox, K., Goldstein, L., & Grana, G. (2004a). The interpersonal process model of intimacy: The role of self-disclosure, partner disclosure, and partner responsiveness in interactions between breast cancer patients and their partners. *Journal of Family Psychology, 18*(4), 589-599. doi:10.1037/0893-3200.18.4.589

Manne, S. L., Ostroff, J., Winkel, G., Grana, G., & Fox, K. (2005). Partner unsupportive responses, avoidant coping, and distress among women with early stage breast cancer: Patient and partner perspectives. *Health Psychology, 24*, 635–641. doi:10.1037/0278-6133.24.6.635

Manne, S., Sherman, M., Ross, S., Ostroff, J., Heyman, R. E., & Fox, K. (2004b). Couples' support-related communication, psychological distress, and relationship

satisfaction among women with early stage breast cancer. *Journal of Consulting and Clinical Psychology, 72*(4), 660-670. doi:10.1037/0022-006X.72.4.660
Mason, H. R. C., Marks, G., Simoni, J. M., Ruiz, M. S., & Richardson, J. L. (1995). Culturally sanctioned secrets? Latino men's nondisclosure of HIV infection to family, friends, and lovers. *Health Psychology, 14*, 6–12. doi:10.1037/0278-6133.14.1.6
McCroskey, J. C., & Young, T. J. (1979). The use and abuse of factor analysis in communication research. *Human Communication Research, 5*, 375-382. doi:10.1111/j.1468-2958.1979.tb00651.x
Moreland, R. L., & Myaskovsky, L. (2000). Exploring the performance benefits of group training: Transactive memory or improved communication? *Organizational Behavior and Human Decision Processes*, *82*(1), 117-133. doi:10.1006/obhd.2000.2891
Nabi, R. (2002). Anger, fear, uncertainty, and attitudes: a test of the cognitive-functional model. *Communication Monographs, 69*, 204-216. doi:10.1080/03637750216541
Nelson, E. C., & Donovan, E. E. (2014). *Uncertainty motivated disclosures: The use of theory of motivated information management in examining cancer diagnosis disclosures.* Paper presented at the annual International Communication Association convention. Seattle, WA.
Northouse, L. L., Dorris, G., & Charron-Moore, C. (1995). Factors affecting couples' adjustment to recurrent breast cancer. *Social Science and Medicine, 41*, 69–76. doi:10.1016/0277-9536(94)00302-A
Northouse, L.L., Mood, D., Kershaw, T., Schafenacker, A., Mellon, S., Walker, J., Galvin, E., & Decker, V. (2002). Quality of life of women with recurrent breast cancer and their family members. *Journal of Clinical Oncology, 20*, 4050–4064. doi:10.1200/JCO.2002.02.054
Northouse, P. G., & Northouse, L. L. (1988). Communication and cancer: Issues confronting patients, health professionals, and family members. *Journal of Psychosocial Oncology, 5*, 17-46. doi:10.1300/J077v05n03_02
Omarzu, J. (2000). A disclosure decision model: Determining how and when individuals will self-disclose. *Personality and Social Psychology Review, 4*, 174–185. doi:10.1207/S15327957PSPR0402_05
Park, H. S., Dailey, R., & Lemus, D. (2002). The use of exploratory factor analysis and principal components analysis in communication research. *Human Communication Research, 28*, 562-577. doi: 10.1111/j.1468-2958.2002.tb00824.x
Petronio, S. (2002). *Boundaries of privacy: Dialectics of disclosure*. Albany, NY: SUNY Press.
Pistrang, N., & Barker, C. (1992). Disclosure of concerns in breast cancer. *Psycho-Oncology, 1*,183–192. doi:10.1002/pon.2960010307
Planalp, S., & Fitness, J. (1999). Thinking/feeling about social and personal relationships. *Journal of Social and Personal Relationships, 16*, 731-750. doi:10.1177/0265407599166004

Planalp, S., & Rosenberg, J. (2014). Emotion in interpersonal communication. In C. R. Berger (Ed.), *Interpersonal Communication* (pp. 273-296). Boston, MA: Degruyter

Rafferty, K. A., Cramer, E., Priddis, D., & Allen, M. (2014). Talking about end-of-life preferences in marriage: Applying the theory of motivated information management. *Health Communication, 00*, 1-10. doi:10.1080/10410236.2014.889555

Redlinger, L. J., & Johnston, S. (1980). introduction secrecy, informational uncertainty, and social control. *Journal of Contemporary Ethnography*, *8*(4), 387-397. doi:10.1177/089124168000800401

Scherer, K. R. (1984). On the nature and function of emotion: A component process approach. In K. R. Scherer & P. Ekman (Eds.), *Approaches to emotion* (pp. 293-317). Hillsdale, NJ: Erlbaum

Segrin, C., Badger, T., Dorros, S. M., Meek, P., & Lopez, A. M. (2007). Interdependent anxiety and psychological distress in women with breast cancer and their partners. *Psycho-Oncology, 16*, 634–643. doi:10.1002/pon.1111

Serovich, J. M., Brucker, P. S., & Kimberly, J. A. (2000). Barriers to social support for persons living with HIV/AIDS. *AIDS Care: Psychological and Socio-medical aspects of HIV/AIDS, 12*, 651-662. doi:10.1080/095401200750003824

Shaffer, A., Jones, D. J., Kotchick, B. A., & Forehand, R. (2001). Telling the children: Disclosure of maternal HIV infection and its effects on child psychosocial adjustment. *Journal of Child and Family Studies, 10*, 301-313. doi:10.1023/A:1012502527457

Shim, M., Cappella, J. N., & Han, J. Y. (2011). How does insightful and emotional disclosure bring potential health benefits? Study based on online support groups for women with breast cancer. *Journal of Communication, 61*, 432-454. doi:10.1111/j.1460-2466.2011.01555.x

Simoni, J. M., Mason, H. R. C., Marks, G., Ruiz, M. S., Reed, D., & Richardson, J. L. (1995). Women's self–disclosure of HIV infection: Rates, reasons, and reactions. *Journal of Consulting and Clinical Psychology, 63*, 474–478. doi:10.1037/0022-006X.63.3.474

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48*, 813-838. doi:10.1037//0022-3514.48.4.970

Sudman, S., Bradburn, N. M., & Schwarz, N. (1996). *Thinking about answers: The application of cognitive processes to survey methodology.* San Francisco, CA: Jossey-Bass.

Suls, J., Green, P., Rose, G., Lounsbury, P., & Gordon, E. (1997). Hiding worries from one's spouse: Associations between coping via protective buffering and distress in male post-myocardial infarction patients and their wives. *Journal of Behavioral Medicine, 20*, 333-349. doi:10.1023/A:1025513029605

Sykes, M. A., Blanchard, E. B., Lackner, J., Keefer, L., & Krasner, S. (2003). Psychopathology in irritable bowel syndrome: Support for a psychophysiological model. *Journal of Behavioral Medicine, 26* (4), 361-372. doi: 0160-7715/03/0800-0361/0

Underwood, B., Froming, W. J., & Moore, B. S. (1980). Mood and personality: A search for the causal relationship. *Journal of Personality, 48*, 15-23. doi:10.1111/j.1467-6494.1980.tb00962.x

Van Kleef, G. A., De Dreu, C. K., & Manstead, A. S. (2010). An interpersonal approach to emotion in social decision making: The emotions as social information model. *Advances in Experimental Social Psychology*, *42*, 45-96. doi:10.1016/S0065-2601(10)42002-X

Vangelisti, A. L. (1994). Family secrets: Forms, functions, and correlates. *Journal of Social and Personal Relationships, 11*, 113-135. doi: 10.1177/0265407594111007

Vangelisti, A. L., & Caughlin, J. P. (1997). Revealing family secrets: The influence of topic, function, and relationships. *Journal of Social and Personal Relationships, 14*, 679-705. doi:10.1177/0265407597145006

Vangelisti, A. L., Caughlin, J. P., & Timmerman, L. (2001). Criteria for revealing family secrets. *Communication Monographs, 68*, 1-27. doi:10.1080/03637750128052

Venetis, M. K., Magsmen-Conrad, K., Checton, M. G., & Greene, K. (2014). Cancer communication and partner burden: An exploratory study. *Journal of Communication, 64*, 82-102. doi:10.1111/jcom.12069

Williams, D. M. (2010). outcome expectancy and self-efficacy: Theoretical implications of an unresolved contradiction. *Personality and Social Psychology Review, 14*, 417-425. doi: 10.1177/1088868310368802

Wilson, K. G, Curran, D., McPherson, C. J. (2005). A burden to others: A common source of distress for the terminally ill. *Cognitive Behavior Therapy, 34*(2), 115-123. doi: 10.1080/16506070510008461

Yoo, G. J., Aviv, C., Levine, E. G., Ewing, C., & Au, A. (2009). Emotion work: Disclosing cancer. *Support Care Cancer, 18*, 205–215. doi:10.1007/s00520-009-0646-y

Zebrack, B. (2009). Information and service needs for young adult cancer survivors. *Support Care Cancer, 17*, 349–357. doi:10.1007/s00520-008-0469-2

Zhang, A. Y, & Siminoff, L. A. (2003). Silence and cancer: Why do families and patients fail to communicate? *Health Communication, 15*, 415-429. doi:10.1207/S15327027HC1504_03

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin, 99*, 432-442. doi: 10.1037/0033-2909.99.3.432